they are said to be blind for nearly the space of a month.

AMERICAN BEAR.

Ursus Americanus. *U. niger, gula genisque ferrugineis. Lin. Syst. Nat. Gmel. p.* 101. *Pall. spic. zool.* 14. *p.* 6. 26.
Black Bear, with ferruginous cheeks and throat.
Black Bear. *Pennant Quadr.* 2. *p.* 4. *Arct. zool. ed.* 2. *No.* 19.

This, which is now considered as a distinct species, and not to be confounded with the Black Bear of Europe, has a long, pointed nose, and narrow forehead: the cheeks and throat of a yellowish brown colour; the hair on the whole body and limbs of a glossy black, smoother and shorter than that of the European kind. It is also said to be, in general, smaller than the European Bear, though instances have been known in which its size, at least, equalled the European, since Mr. Bartram assures us, that a Bear was killed in Florida which weighed four hundred pounds.

This animal inhabits all the northern parts of America, migrating occasionally from the northern to the more southerly parts in quest of food, which is said to be entirely vegetable; and it is even affirmed, that, when pressed by extreme want, they will still neglect all animal food whenever they can obtain a supply of roots and grain. They, however, sometimes destroy fish, and particularly herrings, when these fish happen to come up into the creeks in shoals. They are said to

continue in their winter retreats, either in dens beneath the snow under ground, or in the hollows of old trees, for the space of five or six weeks without food.

Var. ?

YELLOW BEAR.

Among Mr. Catton's figures of quadrupeds a representation is given of a Yellow Bear, from the living animal then kept in the Tower. The following is the description accompanying the plate referred to:

"The Yellow Bear, from Carolina (as the American Bears in general are), is rather smaller than the European Bears; it has also a more pleasant and agreeable countenance, is perfectly tame and sociable; the colour a lively bright orange, of a reddish cast. The hair thick, long, and silky. Its other properties are the same as of the species in general."

Mr. Pennant, in his Arctic Zoology, has compiled, from good authorities, a very curious and pleasing account of the ceremonials used among the North American Indians at the time of their periodical hunting of the Bear.

"The chase of these animals (says he) is a matter of the first importance, and never undertaken without abundance of ceremony. A principal warrior first gives a general invitation to all the hunters. This is followed by a most serious fast

of eight days, a total abstinence from all kinds of food*; notwithstanding which, they pass the day in continual song. This they do to invoke the spirits of the woods to direct them to the places where there are abundance of Bears. They even cut the flesh in divers parts of their bodies, to render the spirits more propitious. They also address themselves to the manes of the beasts slain in preceding chases, as if it were to direct them in their dreams to plenty of game. One dreamer alone cannot determine the place of the chase, numbers must concur; but as they tell each other their dreams, they never fail to agree: whether that may arise from complaisance, or by a real agreement in the dreams, from their thoughts being perpetually turned on the same thing.

"The chief of the hunt now gives a great feast, at which no one dares to appear without first bathing. At this entertainment they eat with great moderation, contrary to their usual custom. The master of the feast alone touches nothing; but is employed in relating to the guests ancient tales of the wonderful feasts in former chases: and fresh invocations to the *manes* of the deceased Bears conclude the whole. They then sally forth amidst the acclamations of the village, equipped as if for war, and painted black. Every able hunter is on a level with a great warrior; but he must have killed his dozen great beasts before his

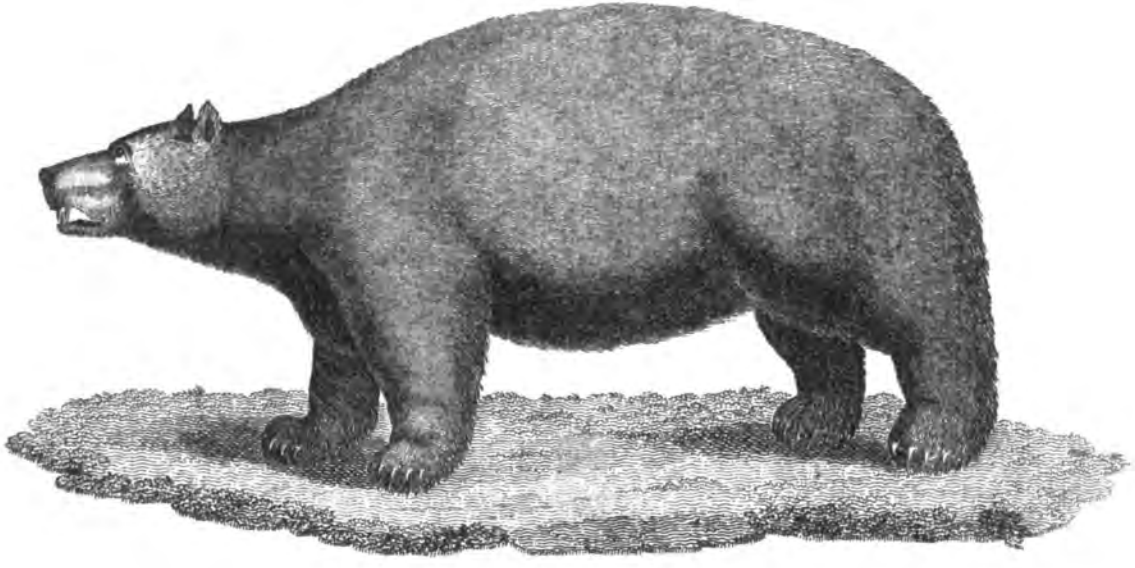
* We must surely suppose that they nourish themselves by some kind of drink during this period.

character is established; after which his alliance is as much courted as that of the most valiant captain.

"They now proceed on their way in a direct line; neither rivers, marshes, or any other impediments, stop their course; driving before them all the beasts which they find in their way. When they arrive in the hunting-ground, they surround as large a space as their company will admit, and then contract their circle, searching, as they contract, every hollow tree, and every place fit for the retreat of the Bear, and continue the same practice till the time of the chase is expired.

"As soon as a Bear is killed, a hunter puts into its mouth a lighted pipe of tobacco, and, blowing into it, fills the throat with the smoke, conjuring the spirit of the animal not to resent what they are going to do to its body, nor to render their future chases unsuccessful. As the beast makes no reply, they cut out the string of the tongue, and throw it into the fire: if it crackles and runs in (which it is almost sure to do), they accept it as a good omen; if not, they consider that the spirit of the beast is not appeased, and that the chase of the next year will be unfortunate.

"The hunters live well during the chase, on provisions which they bring with them. They return home with great pride and self-sufficiency; for to kill a Bear forms the character of a complete man. They give a great entertainment, and now make a point to leave nothing. The



POLAR BEAR.

Wm. Pole, London Publish'd by G. Kearsley Fleet Street

feast is dedicated to a certain genius, perhaps that of gluttony, whose resentment they dread, if they do not eat every morsel, and even sup up the very melted grease in which the meat was dressed. They sometimes eat till they burst, or bring on themselves some violent disorders. The first course is the greatest Bear they have killed, without even taking out the entrails, or taking off the skin; contenting themselves with singeing the skin, as is practised with hogs."

POLAR BEAR.

Ursus Maritimus. *U. albus, cauda abrupta, capite colloque elongatis. Lin. Syst. Nat. Gmel. p.* 101.
White Bear, with elongated neck and head, and abrupt tail.
Ursus maritimus albus major arcticus. *Martens Spitsberg.* 73. *t. O. f. C.*
Ours blanc. *Buff. suppl. 3. p.* 200. *pl.* 34.
Polar Bear. *Pennant Quadr. 2. p.* 5.
Ursus Polaris. Polar Bear. *Museum Leverianum, vol.* 1. *p.* 7. *pl.* 2.

This is a far larger species than the common Bear, and is said to have been sometimes found of the length of twelve feet. The head and neck are of a more lengthened form than in the common Bear, and the body itself is longer in proportion. The whole animal is white, except the tip of the nose and the claws, which are jet black: the ears are small and rounded, the eyes small; the teeth of extraordinary magnitude: the hair is of a great length, and the limbs are extremely

large and strong. It seems confined to the very coldest parts of the globe; being found within 80 degrees of north latitude, as far as any navigators have yet penetrated. The shores of Hudson's Bay, Greenland, and Spitsbergen, are its principal places of residence; but it is said to have been accidentally carried on floating ice as far south as Newfoundland. This species seems to have been often confounded by authors with the white variety of the common Bear, which is occasionally found in the northern regions.

The first tolerable figure of the Polar Bear seems to have been published by Mr. Pennant in his Synopsis of Quadrupeds, and is copied in the third supplemental volume of the Count de Buffon. A far superior representation, however, occurs in the last voyage of Captain Cook.

The Polar Bear is an animal of tremendous strength and fierceness. Barentz, in his voyage in search of a north-east passage to China, had proofs of the ferocity of these animals, in the island of Nova Zembla, where they attacked his seamen, seizing them in their mouths; carrying them off with the utmost ease, and devouring them in the sight of their comrades. It is said that they will attack and attempt to board armed vessels, at a great distance from shore, and have sometimes been with much difficulty repelled. Their usual food consists of seals, fish, and the carcases of whales; but, when on land, they prey on deer, and other animals, as hares, young birds, &c. they also eat various kinds of berries which

they happen to find. They are said to be frequently seen in Greenland in great droves, allured by the scent of the flesh of Seals, and will sometimes surround the habitations of the natives, and attempt to break in; and it is added, that the most successful method of repelling them is by the smell of burnt feathers. They grow extremely fat, a hundred pounds of fat having been taken from a single beast. The flesh is said to be coarse, but the skin is valued for coverings of various kinds, and the Greenlanders often wear it as a clothing. The split tendons are said to form an excellent thread. During the summer they reside chiefly on the ice-islands, and pass frequently from one to another; being extremely expert swimmers. They have been seen on these ice-islands at the distance of more than eighty miles from land, preying and feeding as they float along. They lodge in dens, formed in the vast masses of ice, which are piled in a stupendous manner, leaving great caverns beneath. here they breed, and bring one or two young at a time, and sometimes, but very rarely, three. The affection between parent and young is so great, that they will sooner die than desert each other. They follow their dams a very long time, and grow to a large size before they quit them.

During winter they retire, and bed themselves deep beneath the snow, or else beneath the fixed ice of some eminence, where they pass in a state of torpidity the long and dismal arctic night, appearing only with the return of the sun.

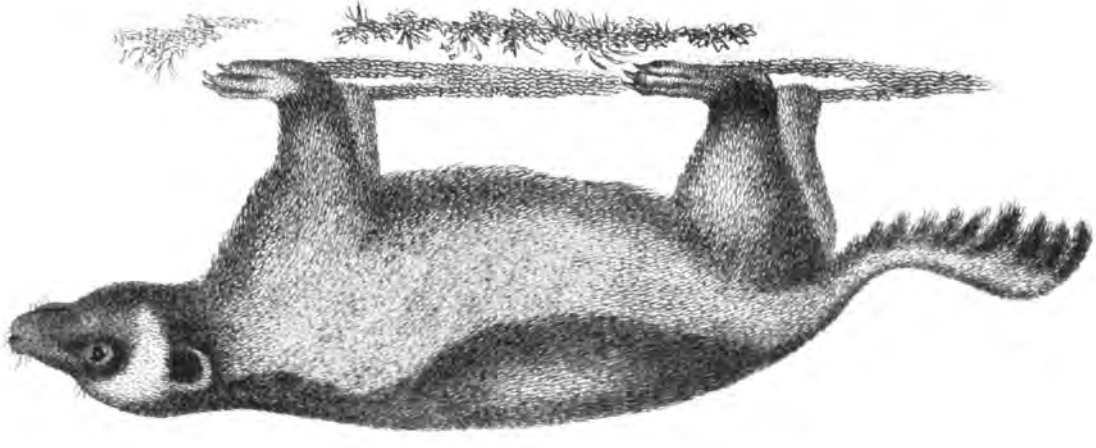
The skins of the Polar Bear, says Mr. Pennant, were formerly offered by the hunters in the arctic regions to the high altars of cathedrals and other churches, for the priest to stand on during the celebration of mass in winter.

GLUTTON.

Ursus Gulo. *U. cauda concolore, corpore rufo-fusco, medio dorso nigro. Lin. Syst. Nat. Gmel. p.* 104.
Rufous-brown Bear, with tail of the same colour, and the middle of the back black.
Gulo. *Gesn. Quadr. p.* 554. *Aldr. dig. p.* 178.
Glouton. *Buff. suppl. 3. p.* 240. *pl.* 48.
Mustela Gulo. *Lin. Syst. Nat. ed.* 12. *p.* 67.

This animal is a native of the most northern parts of Europe and Asia, occurring in Sweden, Norway, Lapland, and Siberia, as well as in some of the Alpine regions, and in the forests of Poland and Courland. It is also found in the northern parts of America, being not uncommon about Hudson's Bay.

The Glutton is considerably larger than a Badger, measuring about a yard from nose to tail, and the tail about a foot; but it seems to vary in size, and is often less than this. The muzzle, as far as beyond the eyes, is blackish brown, and covered with hard shining hair: over the forehead, down the sides of the head between the eyes and ears, runs a whitish or ash-coloured band or fillet: the top of the head and whole



length of the back are black-brown, the colour widening somewhat over the sides as it passes on, and again lessening or contracting towards the tail; or the description might be given in other words, by saying, that the colour of the body is a fine glossy black-brown, with a ferruginous tinge along the sides, so as to form a broad lateral zone; but it is to be observed, that the animal varies considerably in colour; sometimes appearing black, with a subferruginous lateral band; and at other times of a chesnut-colour: the feet are black. In the American variety, hereafter to be described, a whitish or ash-coloured band or border runs along the body, in the same manner as the ferruginous one in the European kind.

The Glutton, as its name imports, has the character of a very voracious animal, preying indiscriminately both on fresh prey and carrion. One which was kept at Dresden would eat thirteen pounds of flesh in a day, without being satisfied. It attacks deer, birds, field-mice, &c. and even sometimes the larger cattle; and is said to sit on the branches of trees, and suddenly to spring down on such animals as happen to pass beneath; tearing them, and sucking the blood, till they fall down through faintness, when it begins to devour the spoil. In winter it seeks out and catches ptarmigans under the snow. What it cannot devour at once it is said to hide under ground, or in the cavity of some tree. It is said to be an animal of uncommon fierceness and strength; and will sometimes dispute the prey both with the Wolf and Bear. It

is also extremely fetid. It breeds once a year, and brings from two to four young at a litter. The fur is much used for muffs, linings, &c. Those skins are said to be preferred which have least of the ferruginous tinge, and for this reason the Siberian variety, which is blacker than the rest, is most esteemed.

Var.?

WOLVERENE.

Ursus Luscus. *U. corpore ferrugineo, rostro fusco, fronte plagaque laterali corporis albidis.*

Ferruginous B. with dusky snout, the forehead and lateral band of the body whitish.

U. corpore ferrugineo, rostro fusco, fronte plagaque laterali corporis albidis. Lin. Syst. Nat. p. 71.

The Quick-Hatch or Wolverene. *Edw. pl. 103.*

Wolverene. *Pennant Quadr. 2. p. 8.*

This appears to be no other than a variety of the former animal, differing in so few particulars as scarce to admit of any other elucidation than what may be caught by the eye on contemplating its figure, which is here given from Edwards, who drew it from a living specimen imported from Hudson's Bay, and presented to Sir Hans Sloane, in whose possession it continued for some years, being perfectly tame and harmless. It was about twice the size of a common Fox. Its description, as given by Edwards, is as follows:

"All the snout, upper and under jaw, as far as the eyes, is of a black-colour: the forehead above

RACCOON.

WOLVERENE.

becomes gradually of a whitish colour; the eyes are of a dark colour; the throat and lower side of the neck white, the first spotted with black, having some transverse bars of black on the under side of the neck: the ears are small and round, appearing but little longer than the hair that grows on the head: they are covered with short brown hair: the hind part of the head and neck, the whole body both above and beneath, the legs and tail, are all of a brown or chesnut-colour, clouded lighter and darker, viz. the upper side of the neck and beginning of the back is dusky, or very dark brown, which gradually changes to a lighter or more pleasant brown in the middle of the back: this colour again grows by degrees darker, till it becomes almost black in the hind part of the back: the tail towards the tip becomes of a dusky-colour: it hath a broad bar of very light ash-coloured brown passing round the body, beginning at each shoulder, proceeding on the sides backwards, and meeting on the rump, just above the tail, where it is broadest. The fur on the whole body is pretty long, and seems not to lie so flat to the skin as in some animals. All the feet, as far as the heel or first joint, are covered with short black hair, which gradually becomes brown above the knees: the claws are of a light horn-colour: it hath on each foot forwards four toes; the hind feet have five toes each."

It should be added, that the above specimen described by Edwards, had lost one eye; and it is

probable that Linnæus carelessly applied the trivial name *luscus* to the animal on no other consideration than the above accidental circumstance.

A specimen mentioned by Mr. Pennant, measured from nose to tail about twenty-eight inches, and the tail about seven inches; but the hair reached six inches beyond the tail itself.

RACCOON.

Ursus Lotor. *U. cauda annulata, fascia per oculos transversali nigra. Lin. Syst. Nat. p.* 103.
B. with annulated tail, and black transverse band across the eyes.
Ursus cauda annulatim variegata. *Briss. Quadr. p.* 189.
Mapach. *Fernand. anim.* 2. *p.* 1. *Nieremb. hist. nat. p.* 175.
Le Raton. *Buff.* 8. *p.* 337. *pl.* 43.
Raccoon. *Pennant Quadr.* 2. *p.* 12.

The Raccoon is a native of the New World, and is principally an inhabitant of the northern parts of that continent. It is also found in some of the West-Indian islands. Its colour is grey; the face white; the eyes each imbedded in a large patch of black, which forms a kind of band across the forehead, and is crossed by a dusky stripe running down the nose. The visage is shaped like that of a Fox, the forehead being broad and the snout sharp; the eyes are large and greenish: the ears short and slightly rounded; and the upper jaw is longer than the lower: the tail, which is covered with bushy hair, tapers to the end, and

is annulated with several black bars: the body is broad, the back arched, the limbs rather short, and the fore legs shorter than the hinder; the animal is covered with thick and long hair, which has a somewhat upright growth: the feet are dusky, and have five toes with very sharp claws. The colour of the Raccoon, which is generally a dark grey, sometimes varies, and has a fulvous or tawny tinge, especially on the lower parts; and a variety entirely of a cream-colour is mentioned by Mr. Pennant. The length of the animal is two feet from nose to tail, and the tail about one foot. The food of the Raccoon, in its wild state, consists chiefly in maize, which it eats while the ears are tender, as well as sugar-canes, various sorts of fruit, as apples, chesnuts, &c. It is also supposed to devour birds and their eggs, and is, therefore, considered as an enemy to poultry. It chiefly feeds by night, and by day keeps in its hole, except in dull weather. In winter, and in very bad weather, it keeps altogether within, and is popularly believed to live like the Bear, by sucking its paws. The Raccoon, however, is an active and sprightly animal when taken into a state of domestication. It has a kind of oblique gait in walking; can leap and climb with great ease, and is very frequently seen on trees. It is easily tamed, and is frequently kept in houses by the Americans, and will live on bread, milk, fish, eggs, &c. It is particularly delighted with sweets of every kind, and has as great a dislike to acids. In eating, it commonly sits on its hind legs, and uses

its fore feet in the manner of hands. It has a way of dipping all manner of dry food that is given it into water before it eats it; as well as of rolling it between its paws for some time. When it kills birds, it proceeds exactly in the manner of a Polecat; first biting off the head, and then sucking out the blood. It drinks but little, and is a very cleanly animal. It is extremely expert in opening oysters, on which, as well as on crabs and various kinds of shell-fish, it frequently feeds in its wild state. It is, when tamed, extremely active and playful; but is of a capricious disposition, and not easily reconciled when offended. When angry, its voice is like a hoarse bark, and at other times soft and sharp. In its wild state it generally inhabits the hollows of trees; but in a domestic state shews no particular inclination for warmth; nor is it observed to be desirous of lying on straw, or any other substance, in preference to the bare ground. It sleeps from about midnight till noon, at which time it comes out for food and exercise. According to Linnæus, the Raccoon has a wonderful antipathy to hogs' bristles, and is much disturbed at the sight of a brush*. It produces from two to three young at a birth: this commonly takes place in the month of May. The fur of the Raccoon is used by the hatters, and is

* This particularity relative to a Raccoon kept and described by Linnæus, is, by some mistake, applied by the Count de Buffon to the Coati Mondi or Viverra Nasua; and is quoted in a note belonging to the history of that animal in his work on quadrupeds.

AMERICAN BADGER.

BADGER.

considered as next in merit for this purpose to that of the Beaver.

BADGER.

Ursus Meles. *U. cauda concolore, corpore supra cinereo, subtus nigro, fascia longitudinali per oculos auresque nigra. Lin. Syst. Nat. p.* 70.

B. with unmarked tail, body grey above, black below, and a longitudinal black band through the eyes and ears.

Meles. *Gesn. Quadr.* 687.

Taxus. *Aldr. dig.* 263.

Meles pilis ex sordide albo et nigro variegatis vestita, capite tæniis alternatim albis et nigris variegata. *Briss. Quadr. p.* 183.

Blaireau. *Buff.* 7. *p.* 104. *pl.* 7.

Common Badger. *Pennant Quadr.* 2. *p.* 14.

The Badger is an inhabitant of all the temperate parts of Europe and Asia. Its usual length is about two feet from the nose to the tail, which measures six inches. It is an animal of very clumsy make, being thick-necked and thick-bodied, with very short legs. It commonly resides in a hole or den under ground, out of which it emerges by night in quest of food; feeding chiefly on roots and fruits; but it will also devour frogs, worms, &c. The Badger is of an uniform grey-colour on the upper parts; and the throat, breast, belly, and legs, are black: the face is white, and along each side of the head runs a long and somewhat triangular or pyramidal band of black, including the eyes and ears: the eyes are small, and the ears short and rounded: the claws on the

fore feet are very long and strait, and it is principally from this circumstance that Mr. Pennant ranks it under a separate genus, instead of including it under that of Ursus or Bear. Authors have sometimes made a distinction between what they have called the Sow Badger and the Dog Badger; but this is supposed to be perfectly untenable, and if there be any perceptible variation, is probably no other than a mere sexual difference. The hair of the Badger, both on the body, limbs, and tail, is very thick; and the teeth, legs, and claws, are very strong; so that he makes a very vigorous defence when attacked. When taken young, the Badger may be easily tamed, and generally prefers raw flesh to every other food in a state of captivity. It is a very cleanly animal, and is observed to keep its subterraneous mansion extremely neat. The female produces about three or four young: this happens in summer*; and, according to the Count de Buffon, the parent seizes on young rabbets†, which she drags out of their burrows, birds, eggs, snakes, and many other animals, in order to feed her young. Like the Bear, this animal is also fond of honey, and will attack hives in order to obtain it. The Badger sleeps a great deal, especially during winter, when he imitates the practice of

* Mr. Schreber says in February.

† Mr. Pennant seems very much to doubt this, and can hardly admit the Badger to be a carnivorous animal.

the Bear, confining himself to his den in a state of semi-torpidity.

Ridinger figures a singular variety of the Badger, of a white colour, with brown and reddish patches.

AMERICAN BADGER.

Ursus ex griseo flavescens, gula pectore & abdomine albis, capite nigro lineato.

Pale yellowish-grey B. with the throat and belly white, and the head striped with black.

Ursus Labradorius. *U. cauda apice villosa ex luteo subfusca, gula, pectore et abdomine albis, palmis tetradactylis. Lin. Syst. Nat. Gmel. p.* 102.

Carcajou. *Buff. suppl. 3. p.* 242. *pl.* 49.

American Badger. *Pennant Quadr. 2. p.* 15.

In its general appearance this extremely resembles the common Badger, and might almost pass for a variety only: it is, however, somewhat smaller, and the black bands on the face are much narrower and do not include the eyes, but commence behind them, and run along the top of the neck: the ears are surrounded with black: the upper parts of the body are nearly of the same colour as in the common Badger, but rather paler, and with a slight yellowish cast; and the breast and belly are of a light ash-colour, instead of black: the legs are of a dusky brown: the claws are at least as long and strong as in the European Badger, if not more so. In the specimen described by the Count de Buffon there were

only four claws on the fore feet; but this was surmised to have been rather owing to some accidental circumstance than truly natural; though it appears to have been considered by Dr. Gmelin as forming part of the genuine specific character of the animal. This species is rather scarce in America. It is found in the neighbourhood of Hudson's Bay, and in Terra di Labrador, and, as Mr. Pennant suspects, as low as Pensylvania, where it is called the Ground Hog.

VAR. ?

A variety of this is found in some parts of America, with the under parts slightly tinged with yellow. It is mentioned by Brisson under the title of *Meles supra alba, infra ex albo flavicans.*

INDIAN BADGER.

Ursus Indicus. *U. supra albus, infra niger.*
B. white above, black beneath.
Indian Badger. *Pennant Quadr. 2. p. 16.*

Mr. Pennant is the first and only describer of this species, which was brought from India, and was in the possession of the late Mr. John Hunter. Its length from nose to tail was about two feet, of the tail four inches. It had five toes on each foot; the inner small; the claws very long and strait. The head was small; the nose pointed; there was scarce any appearance of ex-

ternal ears, only a small prominent rim round the orifice, which was oval: the colour of the nose, and face a little beyond the eyes, black: the crown, upper part of the neck, back, and upper part of the tail, white, a little inclining to greyish: the legs, thighs, breast, belly, sides, and under part of the tail, black. It fed on flesh, and was of a lively and playful disposition.

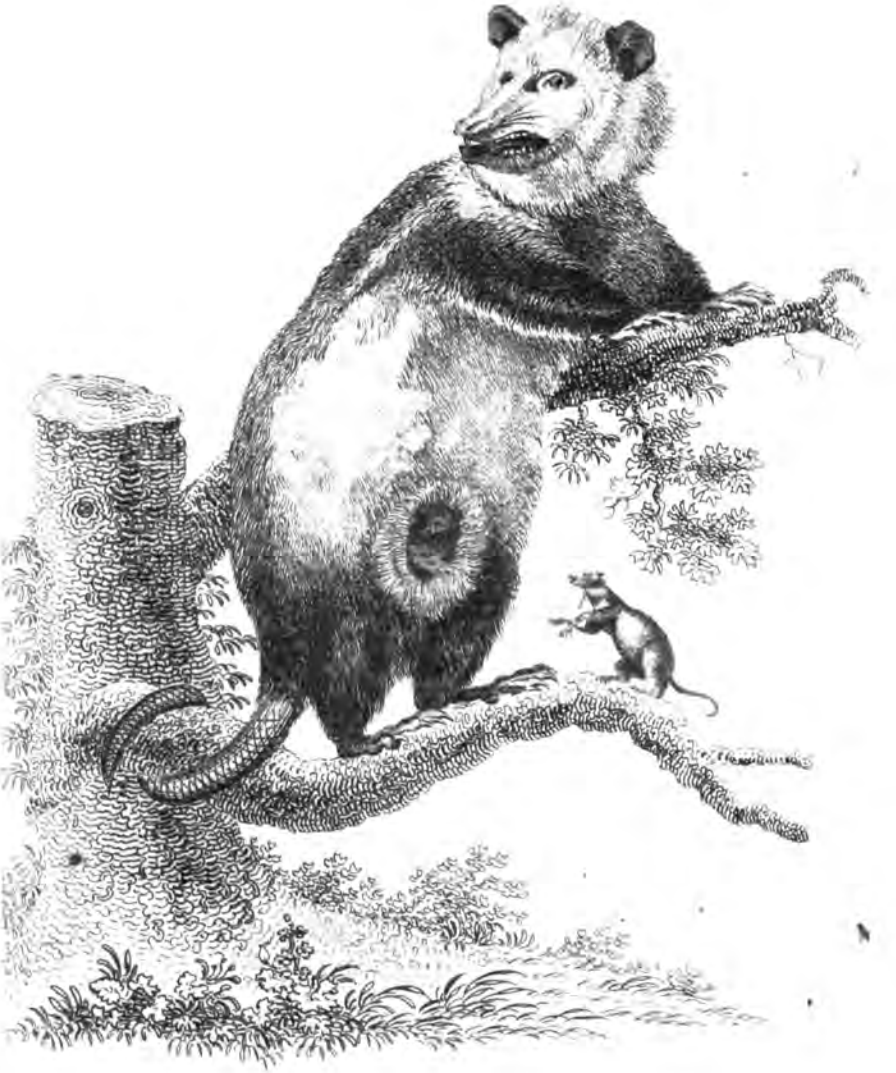
I cannot but observe, that the above species seems extremely nearly allied to one or two animals of the genus Viverra; resembling them in size and colour, viz. the Ratel (Viverra Mellivora) and the Cape Weesel (Viverra Capensis). It may even be doubted whether Viverræ just mentioned may not in reality constitute one and the same species.

DIDELPHIS. OPOSSUM.

Generic Character.

Dentes Primores minuti, rotundati.	*Front-teeth* small, rounded.
Superiores decem, intermediis duobus longioribus.	*Superior* ten, the two middle ones longer.
Inferiores octo, intermediis duobus latioribus brevissimus.	*Inferior* eight, the two middle ones broader and very short.
Laniarii longi.	*Canine-teeth* long.
Molares denticulati.	*Grinders* denticulated.
Lingua papillis ciliata.	*Tongue* ciliated with papillæ.
Folliculus (plerisque) abdominalis mammarum.	*Abdominal pouch* (in most species) containing the teats.

THE animals of this highly singular genus first became known to naturalists on the discovery of the Western Continent, and most justly excited the admiration of the philosophic world, by the strange, and, till then, unheard-of contrivance of Nature for the protection and preservation of the young; which, instead of being exposed, like other animals, during their state of helpless imbecility to the casualties incident to that period, were securely concealed in a pouch or receptacle situated under the body of the parent.



The Opossums were long supposed to be peculiar to America; but later discoveries have evinced that several species, unknown to America, exist in other parts of the globe. It is necessary to observe, that a degree of confusion still prevails among authors, relative to the synonyms of the different species.

VIRGINIAN OPOSSUM.

Didelphis Virginiana. *D. subcinereo-flavescens, cauda unda, auriculis rotundatis nudis nigris, margine albis.*
Yellowish-grey naked-tailed Opossum, with black, naked, rounded ears edged with white.
D. Marsupialis? *Lin. Syst. Nat. p.* 71.
D. Opossum? *Lin. Syst. Nat. Gmel. p.* 105.
Opossum. *Phil. Trans. abr.* 2. *p.* 884. *pl.* 13.
Virginian Opossum. *Museum Leverianum, vol.* 1. *p.* 24. *pl.* 6.

This, which seems to have been the species first discovered in America, is not much inferior in size to a Cat, but is of a thicker form, owing to the length and upright growth of the fur. The general measure seems to be about one foot four inches from the nose to the tail, which is commonly about a foot or thirteen inches long*. It is an animal of an inelegant aspect; having a long, sharpened face, and very wide mouth,

* Mr. Pennant, in his last edition of the History of Quadrupeds, says, about twenty inches from the tip of the nose to the base of the tail: of the tail thirteen inches.

armed with very numerous sharp teeth: the ears are thin, naked, blackish, round, and edged with a border of white: the legs are short: the feet armed with sharp claws, but the interior toes or thumbs of the hind feet are flat and rounded, and have nails like those of the Monkey tribe: the tail is blackish at its origin, and covered with longish hair, but from that part to the end is naked, and covered with a scaly skin, the divisions of which are marked in such a manner as to give the tail very much the appearance of a whitish snake: it is strongly prehensile, or possessed of the power of coiling, like those of several Monkies, round any object from which the animal pleases to suspend itself. Its general colour is a dingy yellowish white; the legs blackish; the tail, as before observed, blackish, and furred to some little distance from the base, and from thence to the tip naked: the belly is white; and its lower part, in the female, is furnished with a large cavity or receptacle, which can be opened and closed at pleasure: in this are situated the teats; and in it the young, immediately after birth, are either placed by the parent animal, or introduce themselves; for this is one of those particulars in natural history which hitherto seems to have eluded investigation: it is, however, more than probable, that the parent herself places them there; since, even long after their residence in it, they are void of hair, and resemble fœtuses or embryos, strongly adhering to the teats. When they have attain-

ed sufficient growth and strength, they emerge, after which they occasionally take refuge in the same receptacle on the appearance of any danger, and are carried about by the parent. This is the practice with most of the Opossum tribe; but there are two species which have no ventral pouch for the reception of their young, but a kind of depression or furrow in its stead.

When imported into Europe (at least into our own island), the Opossums have never been known to breed; the late Mr. John Hunter having frequently procured several for this purpose, but could by no means succeed in his endeavours to ascertain the particulars of their history in this respect. The Kanguroo, however, which is an example of a similar contrivance of Nature, has afforded opportunities of illustrating the subject more satisfactorily.

The Virginian Opossum, like all the other American species, is a carnivorous animal, and preys on poultry, small birds, &c. in the manner of the European Polecat: it is also frugivorous, eating several kinds of roots, fruits, &c. It is of a gentle disposition, and may easily be tamed; but, like some other species, it has a disagreeable smell: its voice is a sort of grunting squeak: its pace in running is not swift, but it is very expert in climbing trees, and readily passes, by means of its clinging tail, from bough to bough, in the manner of a Monkey. The female produces four or five at a birth, and has the power of

closing the pouch so strongly as to make it extremely difficult to open it by the hand; nor will any torture compel the animal to loosen it. This power of strongly closing the pouch is performed by certain bones and muscles which Nature has provided for that purpose. These were observed and described by the celebrated Cowper, in the last century, as also by Dr. Tyson. The female, when ready to produce her young, is said to make herself a nest of dry grass, in some bush, near the root of a tree.

A variety of this species is sometimes seen, in which the back is of a deep brown. This is the *Didelphis Molucca* of Gmelin's edition of the Systema Naturæ of Linnæus.

MOLUCCA OPOSSUM.

Didelphis Marsupialis. *D. fusca, cauda nuda.*
Brown O. with naked tail.
D. mammis octo intra abdomen. *Lin. Syst. Nat. Gmel. p.* 105.
Philander Amboinensis atro-spadiceus in dorso, in ventre ex albido cinereo-flavicans, maculis supra oculos obscure fuscis. *Briss. Quadr.* 201.
Philander Orientalis foem. *Seb. mus.* 1. *p.* 61. *t.* 38. *f.* 1.
Molucca Opossum. *Pennant Quadr.* 2. *p.* 20.
Sarigue, ou l'Opossum. *Buff.* 10. *p.* 279. *pl.* 45, 46.

This, which is a larger species than the former, seems to have been first described and figured by Seba, in his work intituled Thesaurus Rerum Naturalium. It is of a thinner or more slender

MERIAN OPOSSUM.

MOLUCCA OPOSSUM.

GREAT ORIENTAL OPOSSUM. *from Seba*

Geo. Pohl London Published by P. Kearsley Fleet Street

habit than the Virginian Opossum, with the snout longer and the mouth wider in proportion. The Count de Buffon, however, considered it as the same species, and accuses Seba of negligence or ignorance in representing it as a native of the East Indies; contending that all the animals of this genus are natives of the New World. Subsequent discoveries, however, have amply justified Seba's account of its residence, specimens having been frequently imported from the Indian islands, &c. Its colour is a moderately deep brown, paler beneath; the ears moderately large, and somewhat longer in proportion than in the Virginian Opossum, or not of so rounded a form: the tail nearly similar to that of the Virginian: but the superior size, and thinner form both of body and limbs, together with its much darker colour, sufficiently distinguish it, even at first sight, from the former species. It is found in great plenty in Aroe and Solor, and is known in some parts of the East Indies by the name of Pelander Aroe, or the Aroe Rabbet. It also occurs in the hotter parts of South America, and particularly at Surinam. It is reckoned a delicate food, and is said to be often seen at the tables of the great in India, where it is reared with Rabbets.

VAR.

Philander maximus orientalis. *Seba* 1. *p.* 64. *t.* 39.

A supposed variety of the above, but, perhaps, a distinct species, is described and figured by

Seba. It is still larger than the preceding animal, and appears to have broader ears, and a longer and more slender tail. Its colour is darker, its fur harsher or coarser, and over each eye is a dusky spot. It feeds, according to Seba, on fruits, and is a native of Amboina. The individual represented by Seba was a female.

Mr. Pennant very properly observes, that the Count de Buffon seems to have been unacquainted with the Virginian Opossum, and has figured the Indian Opossum or D. marsupialis, imagining it to have been the Virginian species; to which his account of its manners, and the synonyms which he has collected, refer. It may be proper to observe here that great ambiguity and confusion seems still to prevail among writers on natural history with respect to the different species of Opossums.

MEXICAN OPOSSUM.

Didelphis Cayopollin. *D. cauda corpore longiore, marsupio nullo, orbitarum margine nigro. Lin. Syst. Nat. Gmel. p.* 106.
Brown Opossum, with tail longer than the body, and the eyes surrounded with a blackish border.
Mus Africanus Cayopollin dictus. *Seb. mus.* 1. *p.* 49. *t.* 31. *f.* 3.?
Cayopollin. *Buff.* 10. *p.* 350. *pl.* 55.
Mexican Opossum. *Pennant Quadr.* 2. *p.* 24.

The Cayopollin or Mexican Opossum has large angular, naked, transparent ears, thickish snout, and large whiskers. Its colour above is a brownish or tawny ash-colour, pale grey or whitish beneath: the face is also whitish, with a dark line

down the middle, and a blackish or brown border round the eyes, as in some other species: the legs are dusky, and the claws white. The measure of the animal from nose to tail is nine inches, and of the tail the same, which is spotted with brown and white, and is coated with hair to the distance of about an inch from the base, the remainder being naked. The measures of this species, as given by Mr. Schreber, are somewhat different. He says the length of the animal is somewhat more than seven inches, and of the tail more than eleven. It is a native of the mountains of Mexico, where it lives among trees.

SHORT-TAILED OPOSSUM.

Didelphis Brachyura. *D. cauda pilosa et auriculis calvis brevissimis, marsupio nullo, corpore rufo. Lin. Syst. Nat. Gmel p.* 108. *Schreb. saeughth. p.* 548. *t.* 101.

Mus sylvestris Americana foemina. *Seb. mus.* 1. *p.* 50. *t.* 31. *f.* 6.

Short-tailed Opossum. *Pennant Quadr.* 2. *p.* 26.

This is one of the smaller species; and is said seldom to exceed the length of five inches from nose to tail; and in general to be somewhat smaller than this; and the tail scarce exceeds the length of two inches. Its colour is a reddish brown, on the upper parts, and whitish beneath; it is destitute of an abdominal pouch; the young fastening themselves to the teats. The fur of this animal is very soft and elegant; the tail is very thick

at the base, and gradually tapers to the end. It is a native of South America.

JAVAN OPOSSUM.

Didelphis Brunii. *D. cauda brevi calva, pedibus posticis longioribus tridactylis. Lin. Syst. Nat. Gmel. p.* 109.
O. with short naked tail, and long tridactylous hind feet.
Filander. *Le Brun. voy. p.* 347. *f.* 213.
Javan Opossum. *Pennant Quadr.* 22.

This species was first discovered by Le Bruyn the traveller, who had an opportunity of contemplating it in the island of Java. The head is narrow and fox-like: the ears upright: the general colour of the animal is a pale yellowish brown, with a brown stripe up the forehead: in the upper jaw are six cutting teeth: in the lower only two, which are formed like those of a Squirrel. Le Bruyn's figure represents it sitting up in a posture similar to that of a Jerboa, or the Kanguroo; to which latter, indeed, it is allied in the remarkable particularity of the two exterior toes of the hind feet being inclosed under a common skin, as well as in its leaping pace, and the general form of the hind legs and feet; the fore feet have five toes: the abdominal pouch is large, and in it are preserved the young, which Le Bruyn observed peeping out at intervals. It is said to be about the size of a hare.

PHALANGER.

Didelphis Orientalis. *D. cauda ad medium fere pilosa, corporis longitudine, folliculo abdominali, plantarum digitis duobus intermediis coadunatis. Lin. Syst. Nat. Gmel. p.* 108.

Ferruginous O. whitish beneath, with blackish dorsal line, tail of the length of the body, and hairy almost to the middle, and the two middle toes of the hind feet united.

Phalanger. *Buff.*

Phalanger. *Pennant Quadr. 2. p.* 27.

The Phalanger is of the size of a very large rat, measuring about nine inches from nose to tail, and the tail measures ten inches. It is a native of the Molucca islands, and is supposed to be unknown in America, though the Count de Buffon informs us, that the specimens which he examined were transmitted to him under the name of Rats of Surinam. The colour of the Phalanger is rufous grey on the upper part, and yellowish white beneath, and along the top of the head and the back runs a blackish line: the tail is hairy for about two inches and a half from the base, and the remainder is naked. Its voice is said to resemble that of a squirrel, and it often assumes the attitude of a squirrel when feeding. The muzzle is rather thick: the ears short, and covered with hair: in the upper jaw are eight cutting-teeth, and two in the lower.

CAYENNE OPOSSUM.

Didelphis Cancrivora. *D. cauda squamosa fere calva corpus prope æquante, plantarum ungue pollicari plano. Lin. Syst. Nat. Gmel. p.* 108.

O. with nearly naked scaly tail almost the length of the body, and the nail of the thumbs flat.

Crabier. *Buff. suppl. 3. p. 272. pl. 54.*

THIS species was first described by the Count de Buffon. It is a native of Cayenne, and is said to be a very active animal, living on trees by day, and by night descending into marshy places in order to prey on crabs, which it draws out of their holes by its feet, and sometimes by its tail. Its colour above is a reddish tawny, and below yellowish: the fur is somewhat woolly, but beset with much coarser or more bristly external hairs, especially along the back, where they almost form a kind of dusky mane: the fore feet have nails, the hind feet claws, except the thumbs or interior toes, which have nails: the face is long and slender; the ears upright, short, and pointed: the tail very long, taper, and naked. The length of that described by Buffon (which was but young) was seventeen inches, and of the tail fifteen.

PHILANDER.

Didĕlphis Philander. *D. cauda basi pilosa, mammis quaternis.* O. with the tail hairy at the base, and with four teats in the abdominal pouch.

D. cauda bisi pilosa, auriculis pendulis, mammis quaternis. Lin. Syst. Nat. Gmel. p. 72.

Der Faras (D. Philander). *Schreb. saeughth. 1. p. 541. t. 147.*

Tlaquatzin. *Seb. mus. 1. p. 57. t. 36. f. 4.*

The Philander is about the size of a large rat: the head is large, the snout thick, and the ears rounded and upright, though in Seba's figure, as well as in the Linnæan description, they are said to be pendulous: the abdominal pouch contains two large mammæ, each furnished with two teats. Seba, in his figure, represents these parts distinctly, but without any appearance of the pouch, and expressly affirms in the description, that this species is not furnished with one; but Mr. Schreber seems perfectly convinced that this must have been merely owing to an error or oversight in the conduct both of the figure and description, and affirms that the pouch or receptacle really exists in this species. The tail is longer than the body, and is hairy for some little distance from the base, the remainder being naked, and towards the end prehensile. The length of the body is nine inches, and of the tail thirteen. The Philander is of a reddish brown above, and whitish beneath: the eyes are surrounded with a brownish border; the mouth on each side is beset with very long vibrissæ or whiskers; down the

forehead runs a brownish stripe: the thumbs on the hind feet are rounded, as in most others of this genus.

It has ten upper fore teeth, of which the middle ones are rather longer than the rest; and eight lower fore teeth, the middle ones rather longest, and standing distant. It is a native of Surinam, and, in all probability, of several other parts of South America.

MURINE OPOSSUM.

Didelphis Murina. *D. cauda semipilosa, mammis senis. Lin. Syst. Nat. Gmel. p.* 107.
O. with tail half naked, and six teats.
Marmose. *Buff.* 10. *p.* 335. *pl.* 52, 53.
Murine Opossum. *Pennant Quadr.* 2. *p.* 23.

This is one of the smaller Opossums, measuring about six or eight inches from nose to tail, which is nearly of similar length. It is of a somewhat slender form, with a long and sharpish snout and a wide mouth: the ears are large and rounded, and the tail naked, or scaly its whole length, but coated with straggling hairs for about two inches from the base, or even much less. This species has no ventral pouch, but on each side the lower part of the abdomen is a longitudinal furrow or fold, in the cavity of which the teats are situated. The general colour of the Murine Opossum is a kind of tawny brown above, and whitish beneath: the eyes are encircled with

black: in its general mode of life it resembles others of this genus: it produces ten or more young at a birth, which immediately afterwards affix themselves to the teats, and remain there till they attain their proper growth and strength. It is a native of South America, and particularly of Surinam.

The feet in this species are all furnished with sharp claws, except on the thumbs or great toes of the hind feet, which have rounded nails. It is in this particular that it seems chiefly to differ from the following species, or Merian Opossum.

MERIAN OPOSSUM.

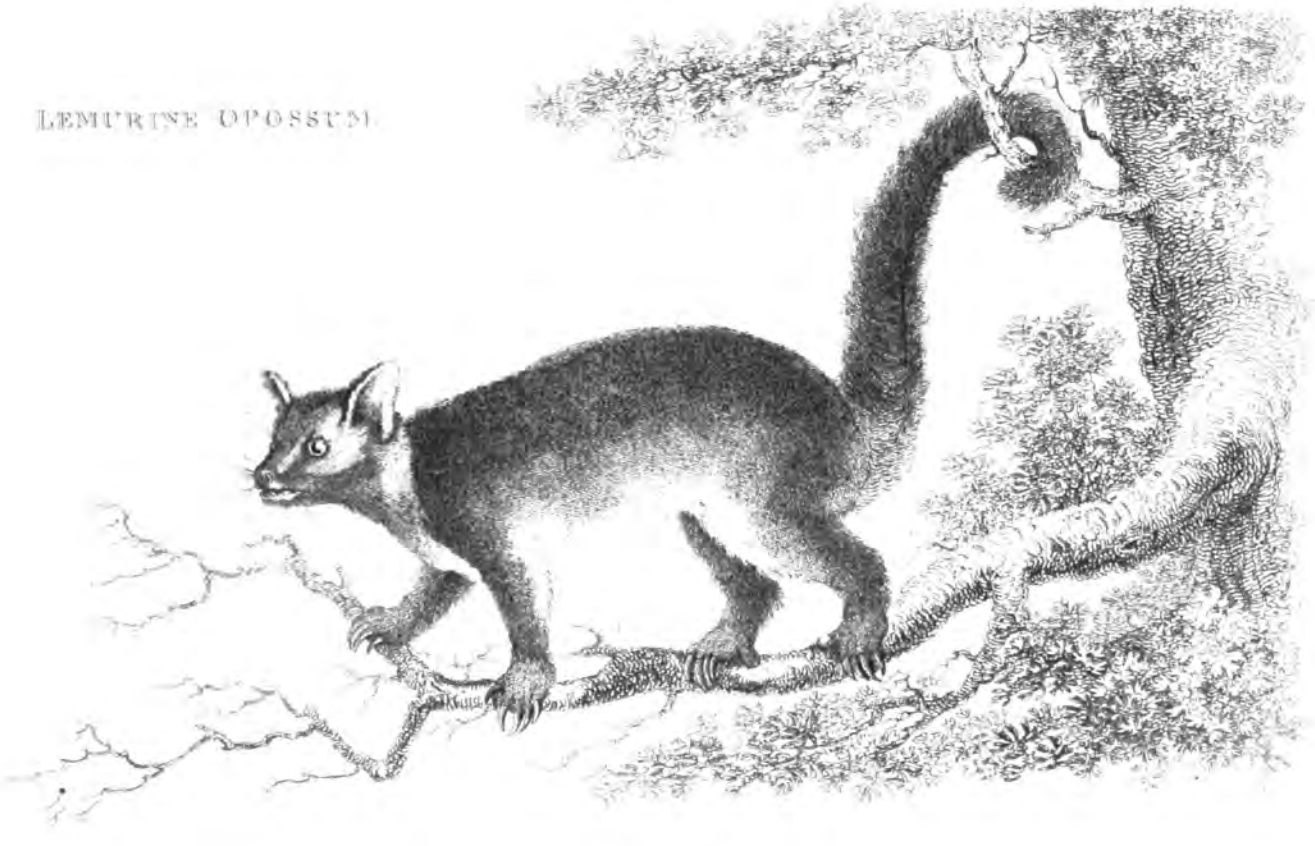
Didelphis Dorsigera. *D. cauda basi pilosa, corpore longiore, digitis manuum muticis. Lin. Syst. Nat. Gmel. p. 107.*
Pouchless O. with naked tail, hairy at the base, and the fore feet without claws.
Genus gliris sylvestris. *Merian Surin. p. 66. t. 66.*
Mus seu sorex sylvestris Americanus. *Seb. 1. p. 48. t. 31. f. 1, 2.*
Philandre de Surinam. *Buff. 15. p. 157.*
Merian Opossum. *Pennant Quadr. 2. p. 27.*

This species is so named from the celebrated Madame Merian, who has introduced a figure of it into her splendid work on the Insects of Surinam. Madame Merian's own account of the animal is as follows: "By way of filling up a plate I have represented a kind of Wood-Rat, which always carries her young ones (of which there are commonly five or six) upon her back: she is of a

yellowish brown colour, and white beneath: when these rats come out of their hole, either to play or to seek their food, they run about with their mother, but when they are satisfied with food, or are apprehensive of danger, they climb up again on the back of the mother, and twist their tails round that of the parent, who runs with them into her hole again."

It is necessary to observe, that in Madame Merian's figure the feet are not accurately represented: this is observed by Seba, who assures us, that the toes on the fore feet are all furnished with small round nails, while those on the hind feet have sharp claws, except the thumb or interior toe, which has a rounded nail, like those on the fore feet. In colour this species seems to vary a little, being either of a deep brown above, and white beneath; or of a yellowish-brown above, and yellowish-white beneath. The eyes, as in the former species or Murine Opossum, are surrounded with a darker or blacker colour than on the rest of the animal, and indeed there seems to be some reason for supposing that this and the Murine Opossum may be one and the same species. The number of teats in the Didelphis Murina of Lin. is said to be only six; Mr. Pennant, on the contrary, assures us that they sometimes amount to ten or fourteen. The teats of the Merian Opossum are not particularized by its describers, but the number of young is said to be generally five or six. In the Leverian Museum is an elegant specimen of this animal.

LEMURINE OPOSSUM.



LEMURINE OPOSSUM.

Didelphis Lemurina. *D. cinerea, subtus fulvescens, cauda teretı villosa prehensili nigra.*

Cinereous Opossum, tawny beneath, with cylindric, black, furry, prehensile tail.

Wha Tapoa Roo. *White's Journ. of a voyage to New South Wales, p.* 278.

Opossum from New South Wales. *Bewick's Hist. of Quadr. p.* 376.

New Holland Bear *Pennant Quadr.* 2. *p.* 13.

THIS is a large species, being equal in size to a Cat, but longer bodied in proportion. Its colour is a fine brownish or iron-grey above, and pale yellowish-brown beneath; in some specimens nearly white: the sides of the neck and the feet have also a tinge of this colour: the fur on the whole animal is extremely thick, rich, and soft, scarce yielding in elegance to that of the Petaurus or Great Flying Opossum: the muzzle is short and roundish; the whiskers large and black; the ears upright, large, and a little inclining to a pointed form at the tips: the eyes bright and reddish: the hind feet furnished with a rounded interior toe: the tail, which is thick, long, and very furry, is prehensile, and is of the same colour with the body for about a fourth of its length; the remainder being black: it is naked beneath to a great distance from the tip. The general length of the body is about eighteen inches; of the tail about twelve. Living specimens of this beautiful animal have been brought into England. In their

manner of life they resemble the rest of this genus, feeding on small birds, vegetables, &c. In feeding they often sit in the manner of a squirrel, holding their food in their hands.

In Mr. White's Journal of a Voyage to New South Wales we have a description of this species by the late Mr. John Hunter, containing some remarks relative to the appearance of the teeth, which cannot fail to be interesting to every anatomist.

"This animal (says Mr. Hunter) is about the size of a Raccoon, is of a dark grey colour on the back, becoming lighter on the sides, which terminates in a rich brown on the belly. The hair is of two kinds, a long hair, and a kind of fur, and even the long hair, at the roots, is of the fur kind.

"The head is short; the eyes rather prominent; the ears broad, not peaked.

"The teeth resemble those of all the animals from that country I have ever seen.

"The incisors are not continued into the grinders by intermediate teeth, although there are two teeth in the intermediate space in the upper jaw, and one in the lower. The incisors are similar to those of the Kangaroo, and six in number in the upper jaw, opposed by two in the lower, which have an oblique surface extending some distance from their edge, so as to increase the surface of contact.

"There are two cuspidati on each side in the upper jaw, and only one in the lower; five grinders

on each side of each jaw, the first rather pointed, the others appear nearly of the same size, and quadrangular in their shape, with a hollow running across their base from the outside to the inner, which is of some depth; and another which crosses it, but not so deep, dividing the surface into four points.

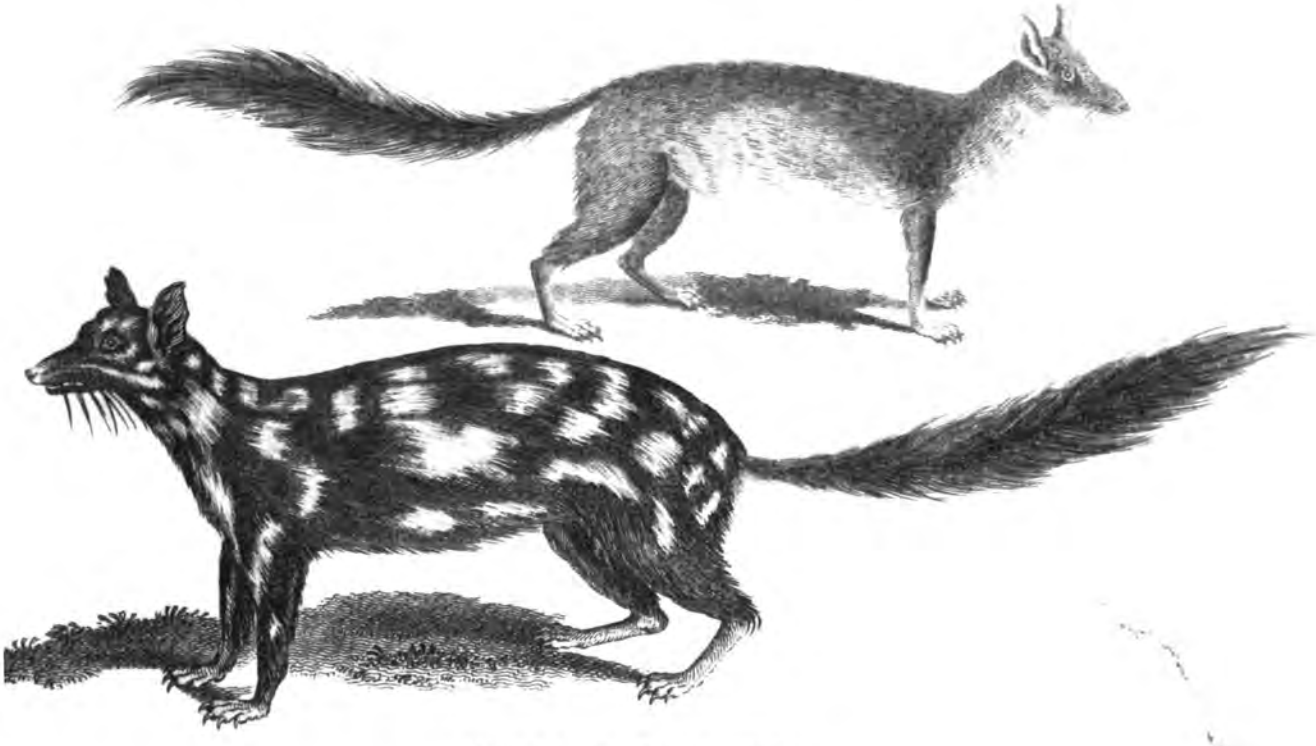
"On the fore foot there are five toes, the inner the shortest, resembling, in a slight degree, a thumb. The hind foot resembles a hand, or that of the Monkey and Opossum, the great toe having no nail, and opposing the whole sole of the foot, which is bare. The nails on the other toes, both of the fore and hind foot, resemble, in a small degree, those of the Cat, being broad and covered: and the last bone of the toe has a projection on the under side, at the articulation. Each nail has, in some degree, a small sheath, covering its base when drawn up. The tail is long, covered with long hair, except on the under surface of that half towards the termination, of the breadth of half an inch, becoming broader near the tip or termination: this surface is covered with a strong cuticle, and is adapted for laying hold."—*White's Journal, p.* 278.

PORCULINE OPOSSUM.

Didelphis Obesula. *D. subferruginea, subtus albescens, cauda longiuscula, pedibus anticis pentadactylis, ungue exteriore utrinque brevissimo, posticis tetradactylis, digitis interioribus unitis.*

Subferruginous Opossum, whitish beneath, with longish tail; the fore feet pentadactylous, with very small exterior claws: the hind feet tetradactylous, with the two interior toes united. *Naturalist's Miscellany, No. 96. t.* 298.

A SPECIMEN of this is preserved in Mr. Hunter's Museum. It is about the size of a half-grown domestic rat, and is remarkable for a thicker or more corpulent habit than most others of the genus. The hind legs are considerably longer than the fore legs, and have in miniature the form of those of the Kangaroo and some other Australasian quadrupeds; though the middle claws are far less in proportion: the interior ones are double, or both covered by a common skin. The colour of this species is a pale yellow-brown, paler and inclining to whitish beneath: and its hair is of a coarser or more harsh appearance than in the rest of the small Opossums: the ears are rounded: the tail rather long. When viewed in a cursory manner, the animal bears a distant resemblance to a pig in miniature.



VIVERRINE OPOSSUM. & var.

Sir Ebert Lawson Publish'd by [illegible] Street

VIVERRINE OPOSSUM.

Didelphis Viverrina. *D. nigra, albo maculata, cauda villosa.*
Var. *D. fusca, immaculata, cauda villosa.*
Black Opossum spotted with white, with villose tail.
The Tapoa Tafa, or Tapha. *White's Journ. p.* 281, 285.
Spotted Opossum? *Phillip's voy. to Bot. Bay, p.* 147.

This animal is remarkable for its slender form, and this, together with its sharpened visage and long brushy tail, gives it, at first view, the appearance of one of the Weesel tribe rather than that of an Opossum. Its general size seems to be that of a Stoat, measuring about ten inches from nose to tail; and the tail itself about eight inches. It appears, however, to vary in size, since different describers differ greatly in their accounts. In the work of Governor Phillip (published by Mr. Stockdale in the year 1789), it is said to measure about fifteen inches from the nose to the tail; the tail measuring about ten inches; but, in Mr. White's publication, the description, by Mr. Hunter, states the animal to be about the size of a rat. The different age of the specimens examined may account for these discrepancies. The colour of the whole animal is a deep glossy black, the whole body and outsides of the limbs being spotted with pretty numerous large and somewhat irregular patches of white. If, however, we admit Mr. Hunter's idea on this subject, the black and white animal just described is of the same species

with a brown one of the same size, and differing only in colour. The brown variety is that which Mr. Hunter, in the publication before referred to, has very accurately described.

"This animal (says Mr. H.) is of the size of a rat, and has very much the appearance of the Martin Cat, but hardly so long in the body in proportion to its size.

"The head is flat forwards, and broad from side to side, especially between the eyes and ears; the nose is peaked, and projecting beyond the teeth, which makes the upper jaw appear to be considerably longer than the lower: the eyes are pretty large; the ears broad, especially at their base, not becoming regularly narrower to a point, nor with a very smooth edge, and having a small process on the concave, or inner surface, near to the base. It has long whiskers from the sides of the cheeks, which begin forwards near the nose, by small and short hairs, and become longer and stronger as they approach the eyes. It has very much the air of a rat, to which it is similar in colour; but near to the setting on of the tail it is of a lighter brown, forming a broad ring round it. The fore feet are shorter than the hind, but much in the same proportion as those of the rat; the hind feet are more flexible. There are five toes on the fore feet, the middle the largest, falling off on each side nearly equally; but the fore or inner toe is rather shortest: they are thin from side to side, the nails are pretty broad laterally, and thin at their base; not very

long, but sharp. The animal walks on its whole palm, on which there is no hair. The hind feet are pretty long, and have five toes; that which answers to our great toe is very short, and has no nail; the next is the longest in the whole, falling gradually off to the outer toe; the shape of the hind toes is the same as in the fore feet, as are likewise the nails: it walks nearly on the whole foot. The tail is covered with long hair, but not all of the same colour.

"The teeth of this creature are different from any other animal yet known. The mouth is full of teeth. The lower jaw narrow in comparison to the upper, more especially backwards, which allows of much broader grinders in this jaw than in the lower, and which occasions the grinders in the upper jaw to project considerably over those in the lower. In the middle the cuspidati oppose one another, the upper piercers, or holders, go behind those of the lower; the second class of incisors in the lower jaw overtop those of the upper, while the two first in the lower go within, or behind those of the upper. In the upper jaw, before the holders, there are four teeth on each side, three of which are pointed, the point standing on the inner surface; and the two in front are longer, stand more obliquely forwards, and appear to be appropriated for a particular use. The holders are a little way behind the last fore teeth, to allow those of the lower jaw to come between. They are pretty long, the cuspidati on each side

become longer and larger towards the grinders; they are points or cones placed on a broad base.

"There are four grinders on each side, the middle two the largest, the last the least: their base is a triangle of the scalenus kind, or having one angle obtuse and two acute. Their base is composed of two surfaces, an inner and an outer, divided by processes or points: it is the inner that the grinders of the lower jaw oppose, when the mouth is regularly shut. The lower jaw has three fore teeth, or incisors, on each side; the first considerably the largest, projecting obliquely forwards; the other two of the same kind, but smaller, the last the smallest.

"The holder in this jaw is not so large as in the upper jaw, and close to the incisors. There are three cuspidati, the middle one the largest, the last the least; these are cones standing on their base, but not on the middle, rather on the anterior side. There are four grinders, the two middle the largest, and rather quadrangular, each of which has a high point or cone on the outer edge, with a smaller, and three more diminutive on the inner edge.

"It is impossible to say critically what the various forms of these teeth are adapted for from the general principles of teeth. In the front we have what may divide and tear off; behind those there are holders or destroyers; behind the latter such as will assist in mashing, as the grinders of the Lion, and other carnivorous animals; and,

last of all, grinders, to divide parts into smaller portions, as in the graminivorous tribe: the articulation of the jaw in some degree admits of all those motions."—*White's Journ. p.* 281.

The spotted kind, first mentioned, Mr. Hunter considers as the "same species, differing only in its external colour, and in being spotted."

In wild animals, however, of the same species, so remarkable a difference in point of colour must surely be admitted to be no very common circumstance. The general appearance in both is indeed nearly the same; yet they may still differ specifically. As this is a point, however, which nothing but accurate and repeated examination of the living animals can determine, I shall, in compliance with so great an authority, consider them at present as constituting one species.

The plate, which is accurately copied from Mr. White's publication, represents both the specimens.

PETAURINE OPOSSUM.

Didelphis Petaurus. *D. hypochondriis prolixis volitans, supra cinereo-nigricans ferrugineo tincta, subtus albida, cauda longa subtereti villosissima.*

Blackish-grey Opossum, tinged with ferruginous; whitish beneath; with lateral flying membrane, and long, subcylindric, very villose tail.

Hepoona Roo. *White's Journal, p.* 288.

The Southern Petaurus. *Naturalist's Miscellany, pl.* 60.

The size, colours, and form, of the Petaurine or great flying Opossum of New Holland, conspire to render it one of the most beautiful of quadrupeds. It measures about twenty-two inches from the tip of the nose to the beginning of the tail, which is twenty inches in length. The body is about the size of a half-grown cat or a small rabbet, and the general appearance of the animal is similar to that of a flying squirrel; an expansile membrane, covered with fur, stretching from the fore legs to the hind on each side of the body, and thus enabling the animal to spring to a considerable distance at pleasure.

The general colour of this species is a very fine sable, or deep grey-brown above, varied with a cast of ferruginous: beneath it is nearly white: a stripe of darker or blacker brown than the rest runs along the back from head to tail: the fur near the edge of the flying membrane on its upper part has also a blacker or darker tinge than on the other parts, while the edge itself is white, thus forming a beautiful contrast of colour round

PETAURINE OPOSSUM.

[illegible] Publ'd by G. Kearsley Fleet Street.

the whole border of the membrane: a darker or blacker shade than on the rest of the fur prevails on the upper parts of the shoulders, extending over each side of the neck. The tail is at least equal to the whole length of the head and body, and is extremely full of long, soft fur, of a blacker cast than the rest, particularly towards the end, where it is longer or more floccy than towards the base: the whole is of a roundish or subcylindric form, but from the disposition of the long fur, has a slightly flattened appearance towards the extremity. This species is most elegantly figured in Mr. White's Journal: and the representation here given is copied from the same plate, as was also the figure published some years past in the Naturalist's Miscellany, under the title of *Petaurus;* it being then supposed that this animal had no abdominal pouch; for which reason I at that time considered it as belonging to the tribe of flying squirrels, and separated them from the rest under a distinct genus of the above denomination.

The native name of this animal is *Hepoona Roo.*

SQUIRREL OPOSSUM.

Didelphis Sciurea. *D. hypochondriis prolixis volitans, supra cana, subtus nivea, cauda villosissima prehensili, apicem versus nigra. Zool. of New Holland, No. 4. p. 29. t. 11.*

Pale-grey Opossum, snow-white beneath, with lateral flying membrane and very villose prehensile tail.

THIS is perhaps the most beautiful quadruped, if we except the Petaurus or Great Flying Opossum, of all the Australasian species yet discovered. In its general aspect it has so much the appearance of a Squirrel, that, on a cursory view, it might readily pass for such. A more exact inspection into its characters will, however, evince it to be a genuine Opossum. Its size is nearly that of a common Squirrel; but, from the fullness and particular growth of the fur, which, like that of the Lemur, grows in a suberect manner, it appears somewhat larger. Its general colour is exactly like that of the Sciurus cinereus, or American Grey Squirrel. A black stripe passes over each eye along the top of the head: under each ear is a black patch surrounded with white; the hair on the white part having a more soft or flocculent appearance than the black. The tail, which is prehensile, is of the same colour with the body for about half its length, the remainder being black. It is very full of hair, and tapers a little towards the extremity, but without any acute termination. The eyes are black, rounded, and full: the ears round, shortish, and very thin: the

BRUSH-TAILED OPOSSUM.
LONG-TAILED OPOSSUM.
SQUIRREL OPOSSUM.

whole under side of the animal is milk-white: the upper parts of the feet are also white, and the edge of the lateral or flying membrane, which extends from the fore feet to the hind, is edged with a blackish border, as in the flying squirrels. The abdominal pouch is of considerable size, and is situated as in other Opossums, on the lower part of the abdomen: the hind feet are furnished with a rounded, unarmed, or mutic thumb. Nothing can exceed the softness and delicacy of this animal's fur, which is, if possible, still finer than that of the Petaurus, to which indeed, though very greatly inferior in size, as well as widely different in colour, it yet bears a striking affinity. It is a nocturnal animal, and continues torpid the greatest part of the day, but during the night is full of activity. In this, as well as in other Australian Opossums, the two toes on the hind feet nearest the thumb or rounded one, are connate, or both conjoined under one common skin.

Some of this species were brought over a few years since, and lived a considerable time: the beautiful representation given in the third number of the work intituled Zoology of New Holland, was drawn from one in the possession of T. Wilson, Esq. to whom it was presented by Mr. White, chief surgeon to the English settlement in New Holland.

Mr. Pennant, in the last edition of his History of Quadrupeds, appears, through some oversight, to have described it as a Squirrel, under the name of the Norfolk-Isle Squirrel. In all probability

Mr. P. had not an opportunity of contemplating the living animal, but took his description from a figure.

VAR. ?

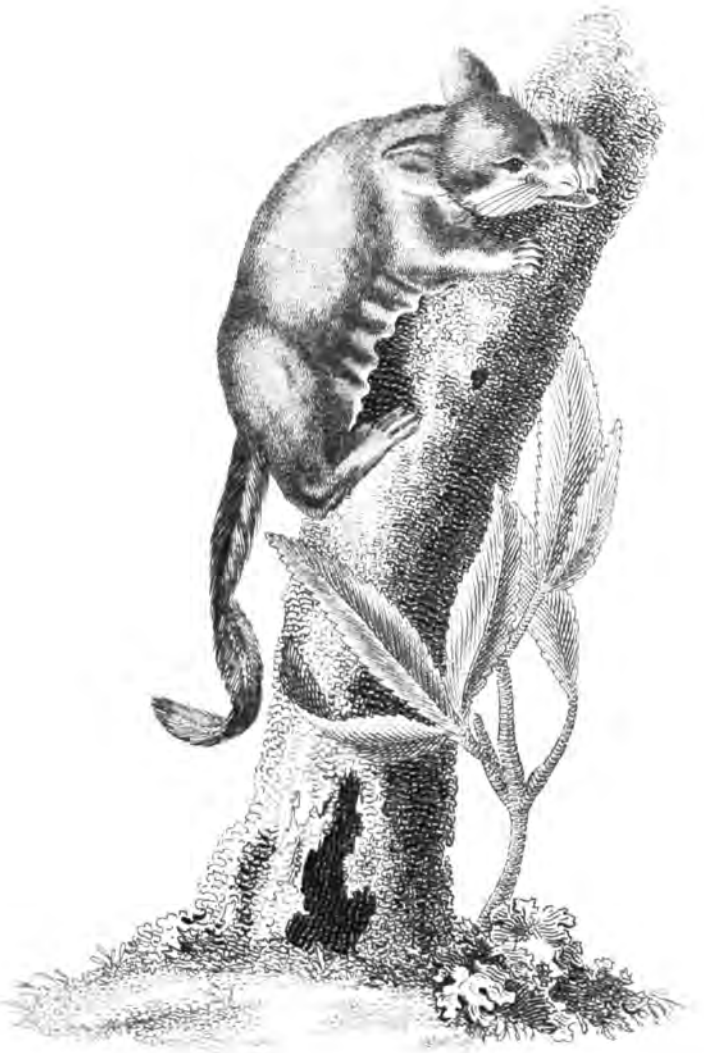
Among some drawings in Mr. White's collection, I observed a figure which in every respect seemed to agree with the above animal, except in having the tail of the same colour with the body except near the tip, where it was marked with a bar of black, the tip itself being white. This drawing was not more than half the size of the preceding species, but as no particular size was specified, and as there was reason for supposing it to relate to the former animal, I here place it as a variety only.

LONG-TAILED OPOSSUM.

Didelphis Macroura. *D. hypochondriis prolixis volitans, supra cinerea, subtus albida cauda longissima attenuata nigra. New Holland Zoology, No. 3. p. 33. t. 12.*

Ash-coloured Opossum, whitish beneath with lateral flying membrane, and very long black tail. *New Holl. Zool. p. 33.*

THIS species is about the size of a black rat, and is of a dark or brownish grey above, and whitish beneath: the head and neck are also whitish, but a dusky stripe runs along the top of the head almost to the nose: the ears are whitish, moderately large, and slightly rounded: the up-



PYGMY OPOSSUM, of natural size.

per parts of the fore feet are whitish; and the lower half of the tail is of a deeper black than the beginning. In the structure of the feet it agrees with other Australian Opossums: the two interior toes of the hind feet being united under one common skin.

The dried skin of this species was sent over by Mr. White, and the specimen figured in the Zoology of New Holland was described from it.

PYGMY OPOSSUM.

Didelphis Pygmæa. *D. hypochondriis prolixis volitans, cauda plano-pinnata lineari.*

Opossum with lateral flying membrane, and flatly-pinnated linear tail. *New Holland Zoology, No. 1. p. 5.*

This is by far the most minute of all the Opossums, and, from its diminutive size, not exceeding that of a common mouse, has been named the Pygmy Opossum. It has been most elegantly figured in the *Zoology of New Holland*, and the representation here given exhibits the animal in a similar posture. It is furnished on each side the body with an expansile membrane, exactly in the manner of the flying squirrel; by the assistance of which it is enabled to spring to a considerable distance. The fur on the whole animal is extremely fine: the colour is a soft or palish brown above, and almost white beneath: the edges of the flying membrane are also white: the nose, feet, and ears internally, are of a light pink

or flesh-colour: the tail is of a flattened form, and is beautifully edged on each side with soft, silky hairs. The opening of the abdominal pouch in this species is of a semilunar form: on opening this receptacle in the specimen described in the New Holland Zoology, I discovered, on each side, a young one, large in proportion to the parent animal, and totally destitute of hair: they had, therefore, not approached to the period of their second birth. In such specimens as were not in a pregnant state, the mammæ or teats were extremely small, and only four in number. The tongue in this animal is remarkably large and long, and of a flattened form: the hind feet have rounded and unarmed thumbs, and the two interior toes are united under a common skin. I am inclined to think that this little species feeds on insects; and probably on young birds, eggs, &c.

BRUSH-TAILED OPOSSUM.

Didelphis Penicillata. *D. cinerea, subtus albida, caudæ apice villoso nigro.*

Ash-coloured Opossum, whitish beneath, with the end of the tail villose and black.

This species is about the size of the black rat, and of an elegant appearance. The general colour is cinereous or deep grey, somewhat darker on the back: the nose is rather sharp: the ears moderately large, and of a very slightly pointed form at the tips: the sides of the mouth are furnished

with very long fine bristles or whiskers, and others somewhat shorter are situated above each eye: the feet are formed as in others of this tribe: the sides are dilated into a flying membrane; and the tail is thin and ash-coloured for nearly half its length, and from thence is jet black, with very long fine hairs, so disposed as to represent a brush or large camels' hair pencil.

VULPINE OPOSSUM.

Didelphis Vulpina. *D. ferruginea, cauda villosa nigra.*
Ferruginous O. with black villose tail.
Vulpine Opossum. *Phillip's voy. p.* 150. *pl.* 16.

This, which is one of the larger Opossums, is said to measure twenty-six inches from the nose to the setting on of the tail, and the tail itself fifteen inches. The general colour of the animal is, on the upper parts, dusky grey, with a rufous tinge; all the under parts being of a tawny buff-colour, deepest on the throat: the tail is of the colour of the back for about a quarter of its length, and from thence to the end black: it appears from the representation in Mr. Phillip's voyage, to be well covered with fur to the very end. Upon the whole, I cannot help imagining that it is in reality no other than the species already described, under the name of the *Lemurine Opossum.*

WHITE-TAILED OPOSSUM.

New Holland O. *Pennant Quadr. 2. p. 25.*
Opossum. *Hawskew. voy. 3. p. 586. Cook's last voy. 1. p. 108. pl. 4.*

THIS is described as about twice the size of a rat; and of a rusty brown colour above, whitish beneath: the hair soft and glossy; the tail taper, and nearly the length of the body; it is covered with brown hair to within about four inches and a half at the end, where it is white, bare, and prehensile; the ears are short and rounded, and the face rather long. This species is a native of New Holland, and is described, but not very distinctly, in the voyages above referred to.

URSINE OPOSSUM.

Didelphis Ursina. *D. flavescens, labio superiore bifido.*
Yellowish O. with bifid upper lip.

THE largest of all the Opossums: size of a Badger: colour pale yellow: fur longish and suberect: nose strongly divided by a furrow.

Native of New Holland: a species very lately discovered, and not yet fully or satisfactorily known or described.

THE KANGUROO

MACROPUS. KANGUROO.

Generic Character.

Dentes Primores superiores sex, emarginati.	*Front-teeth* in the upper jaw six*, emarginated.
Inferiores duo, maximi, longissimi, acuminati, antrorsum porrecti.	In the lower jaw two, very large, long, sharp, and pointing forwards.
Molares utrinque quinque, remoti.	*Grinders* five on each side, both in the upper and lower jaw, distant from the other teeth.
Pedes antici brevissimi: *postici* longissimi.	*Fore Legs* very short: *hind legs* very long.
Folliculus abdominalis fœminæ.	*Abdominal pouch* in the female.

GREAT KANGUROO.

Macropus Major. *M. subfuscus, auriculis subacuminatis, pedibus anticis tetradactylis.*

Brownish Kanguroo, with sharpish ears and pentadactylous fore feet.

Macropus giganteus. Great Kanguroo. *Naturalist's Miscellany. pl.* 33.

Didelphis gigantea. *Lin. Syst. Nat. Gmel. p.* 109. *Schreb. t.* 154.

Kanguroo. *Cook's voy. (Hawkesw.)* 3. *p.* 577. *pl.* 20. *Phillips's voy. p.* 105. *pl.* 10. *White's voy. p.* 272. *pl.* 54.

OF all the animals which the vast island, or, to speak more properly, continent of Australasia,

* In the young or half-grown animal, eight.

has yet presented to our view (the Platypus alone excepted), the Kanguroo must be considered as the most extraordinary: its size, general conformation, teeth, and other particulars, conspiring to render it a most interesting object to every naturalist.

The first discovery of this remarkable quadruped, which had till then remained concealed in a distant corner of the globe, and surveyed only by the eyes of savages, was in the year 1770, when our celebrated navigator Captain Cook was stationed for a short time on that part of the coast of New Holland which is now called New South Wales.

"On Friday, June the twenty-second (says Captain Cook), a party who were engaged in shooting pigeons for the use of the sick of the ship, saw an animal which they described to be 'as large as a greyhound, of a slender make, of a mouse-colour, and extremely swift.'" The following day the same kind of animal was again seen by a great many other people. On the twenty-fourth it was seen by Captain Cook himself, who, walking at a little distance from the shore, observed a quadruped, which he thought bore some resemblance to a greyhound, and was of a light mouse-colour, with a long tail, and which he should have taken for a kind of wild dog, had not its extraordinary manner of leaping, instead of running, convinced him of the contrary. Mr. Banks also obtained a transient

view of it, and immediately concluded it to be an animal perfectly new and undescribed.

On the 17th of July, this gentleman, accompanied by small party, went out at dawn of day in quest of discoveries in natural history; and, in a walk of many miles, at length saw four of these animals, two of which were chased by his greyhound, but readily outstripped their pursuer, and threw him out at a great distance, by leaping over the long grass, which prevented the dog from running to advantage*: all that could then be distinctly observed was, that the animal in some degree resembled the Jerboa in its manner of springing forwards on the hind legs, instead of running in the manner of other quadrupeds.

The sight of a creature so extraordinary could not fail to excite, in the mind of a philosophic observer, the most ardent wishes for a complete examination. These were at length gratified; Mr. Gore, one of the associates in the expedition of Captain Cook, having been so fortunate as to shoot one in the course of a few days; and it seems to have been from this specimen that the figure given in the voyage, was drawn, which may be considered as in reality the best hitherto published, except in the article of the hind feet, which, instead of their very remarkable natural structure, are represented something like those of

* In such parts of the country where dogs can run with ease, or without being too much impeded by the long grass and shrubs, the Kanguroo is found unequal to the chace, and has several times been caught with greyhounds.

a dog. In Mr. Schreber's work on Quadrupeds, as well as in the first edition of Mr. Pennant's History of Quadrupeds, this figure is copied with the fault just mentioned; but in Mr. Pennant's last edition it is properly corrected, and rendered a faithful representation: this figure, therefore, so far as regards the general attitude, has been selected for the present publication, accompanied by other sketches expressive of its different postures*. It should seem that the first described specimens of the Kanguroo were males; so that one of its greatest singularities was still unobserved, viz. the large abdominal pouch or receptacle in which the young are preserved for many months after their first production; and in which this animal is allied to the *Opossums;* while, on the contrary, it differs from those animals in the teeth, and is, at the same time, allied in habit or general form to the *Jerboas:* this, indeed, is the case also with one species of Opossum, viz. the Didelphis Brunii, which may be, therefore, considered as forming a kind of connecting link between the Kanguroo and the Opossums.

The general size of the Kanguroo is, at least, equal to that of a full-grown sheep: the upper parts of the animal are small, while the lower are remarkably large in proportion; yet such is the elegance of gradation in this respect, that the Kanguroo may justly be considered as one of the

* These are taken from figures in Mr. Church's most elegant publication entitled *A Cabinet of Quadrupeds.*

most picturesque of quadrupeds. The head bears some resemblance to that of a deer, and the visage is mild and placid: the ears are moderately large, of a slightly sharpened form, and upright: the eyes large, and the mouth rather small: the neck thin and finely proportioned: the fore legs extremely short, with the feet divided into five toes, each furnished with a sharp and somewhat crooked claw. From the breast downwards the body gradually enlarges, and again decreases a little towards the tail: the thighs and hind legs are extremely stout and long; and the feet are so constructed as to appear, at first sight, to consist of but three toes, of which the middle is by far the largest, and is furnished with a claw of great size and strength: the exterior toe is also furnished with a very strong claw, but far smaller than that of the middle one; and the interior consists of two small toes united under a common skin, with their respective claws placed so close to each other as to appear like a split or double claw: the whole appearance of the foot bears a distant resemblance to that of a bird. The Kanguroo rests on the whole length of the foot, which is callous, blackish, and granulated beneath. The colour of the animal is an elegant pale brown, lighter or more inclining to whiteness on the abdomen: the ventral pouch, or receptacle for the young, is situated in the same manner as in the Opossums, and is extremely large and deep.

The dimensions of a full-grown Kanguroo are given as follows, in Governor Phillip's voyage

to Botany Bay, viz. eight feet from the tip of the nose to that of the tail: length of the tail three feet one inch: of the head eleven inches: of the fore legs two feet: of the hind three feet seven inches: circumference of the fore part of the animal near the legs, three feet nine inches: of the lower part near the legs four feet five inches: round the thickest end of the tail one foot one inch. The weight of the largest specimens is said to have been about 150 pounds; but it is imagined that this animal attains a still larger size.

Though the general position of the Kanguroo, when at rest, is standing on its hind feet, as represented in the figure, yet it frequently places its fore feet on the ground also, and thus feeds in the manner of other quadrupeds. It drinks by lapping. In its natural state it is extremely timid, and springs from the sight of mankind by vast bounds of many feet in height, and to a surprising distance. When in a state of captivity it has sometimes a way of springing forwards and kicking with its hind feet in a very forcible and violent manner; during which action it rests or props itself on the base of the tail. In a natural state it sometimes uses its tail as a weapon of defence, and will give such severe blows with it to dogs as to oblige them to desist from their attack. The female Kanguroo has two mammæ or breasts situated in the abdominal pouch, and on each are seated two teats; yet, so far as has hitherto been observed, the animal produces but

one young at a birth; and so exceedingly diminutive is the young, when first found in the pouch, as scarce to exceed an inch in length. The young continues in the pouch till it is grown to a large size, and takes occasional refuge in it long after it has been accustomed to come abroad.

The Kanguroo feeds entirely on vegetable substances, and chiefly on grass. In their native state these animals are said to feed in herds of thirty or forty together; and one is generally observed to be stationed, as if apparently on the watch, at a distance from the rest.

The flesh of the Kanguroo is said to be rather coarse, and such as to be eaten rather in defect of other food than as an article of luxury.

I know not how it happens that Dr. Gmelin, in his observation on the Kanguroo (Didelphis gigantea. *Lin. Syst. Nat. Gmel. p.* 109.), affirms, that the teeth are those of a Didelphis; since they differ most widely from those of that genus, as will readily appear on collating the generic characters. It is, however, true that some of the Australasian Opossums have a greater affinity to the Kanguroo in the disposition of their teeth than to the animals of the Linnæan genus Didelphis, with which, for convenience, we have associated them. How Linnæus would have disposed of these anomalous species may, perhaps, be doubted; but the inquiry seems of no great importance, since they possess characters which will always sufficiently distinguish them without a particular examination of their teeth.

One of the most remarkable particularities of the Kanguroo is the extraordinary faculty which it possesses of separating at pleasure, to a considerable distance, the two long fore teeth in the lower jaw. This faculty, however, is not absolutely peculiar to the Kanguroo, but takes place in an animal of a very different and distant genus, viz. the Mus maritimus. *(Lin. Syst. Nat. Gmel.)*

It should seem that there are in reality either different species, or at least permanent varieties of the Kanguroo, which are hitherto not sufficiently known to be exactly described. Some of these appear to be of a darker colour than the common Kanguroo, and to have a coarser fur.

The Kanguroo may now be considered as in a great degree naturalized in England; several having been kept for some years in the royal domains at Richmond, which have, during their residence there, produced young, and seem to promise to render this most elegant animal a permanent acquisition to our country; though it must, no doubt, lose, by a degree of confinement and alteration of food, a part of its natural habits, and exhibit somewhat less of that bounding vivacity which so much distinguishes it in its native wilds of Australasia.

RAT KANGUROO.

RAT KANGUROO.

Macropus Minor. *M. fuscus, subtus cinereus, auriculis rotundatis, palmis tetradactylis.*

Brown Kanguroo, ash-coloured beneath, with rounded ears and tetradactylous fore feet.

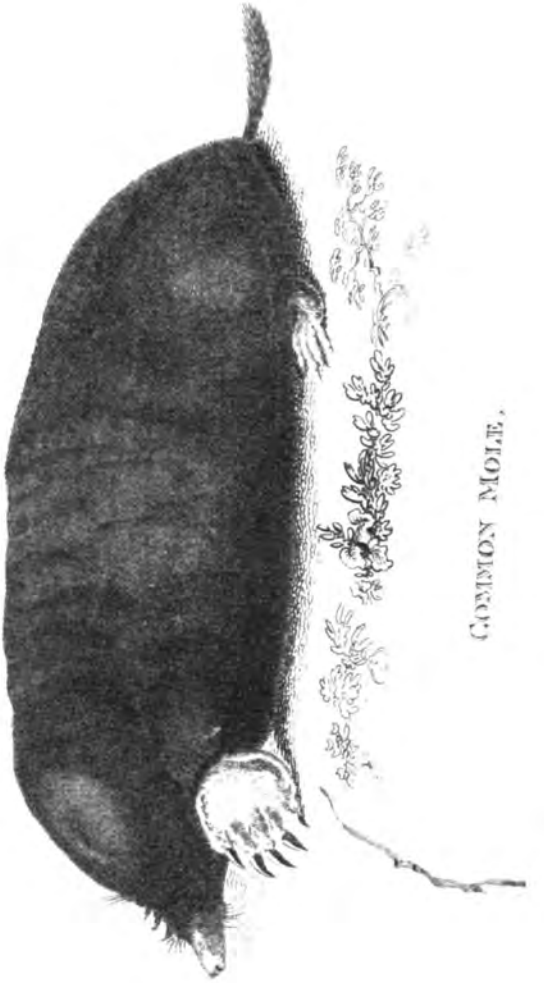
Kanguroo Rat. *Phillip's voyage to Bot. Bay, p. 277. pl. 47.*

The Poto Roo, or Kanguroo Rat. *White's voy. to New South Wales, p. 286. pl. 60.*

Lesser Kanguroo. *Pennant Quadr. 2. p. 32.*

This species, which, from its colour and the general aspect of its upper parts, has obtained the title of the Kanguroo Rat, is about the size of a rabbet: the head is rather flattened sideways, and bears some resemblance to that of a rat: the general shape of the animal resembles that of the Kanguroo, but is far less elegant, the proportions of the parts less pleasing, and the hair, which is a dusky cinereous brown, of a coarser nature. In its teeth it agrees with the great Kanguroo, except that it has eight instead of six front teeth in the upper jaw, the two middle ones being sharp-pointed: the fore teeth in the lower jaw are like those of the Kanguroo as to shape and position, but are smaller in proportion: the grinders are three in number on each side both above and below, the foremost being fluted or channelled with several longitudinal ribs; the two remaining ones plain: the ears are rather large, and on each side of the upper lip are several long vibrissæ or whiskers. The structure of the hind feet in this species perfectly resembles

that of the Kanguroo, but the fore feet have only four toes. The female is furnished with an abdominal pouch for the reception of the young. Some of this species were imported in a living state from New Holland, and brought forth young. Its native name is Poto Roo.



COMMON MOLE.

TALPA. MOLE.

Generic Character.

Dentes Primores inæquales superiores sex.	*Front-teeth* in the upper jaw six, unequal.
Inferiores octo.	In the lower jaw eight.
Laniarii unici, superiores majores.	*Canine-teeth* one on each side; the upper ones largest.
Molares superiores septem.	*Grinders* seven in the upper
Inferiores sex.	jaw; six in the lower.

THE genus *Talpa* or Mole is readily distinguished by its peculiar shape, habit, or general appearance, even without an examination of the teeth; in which particular some species resemble the genus *Sorex*, and were placed in that genus by Linnæus.

COMMON MOLE.

Talpa Europæa. *T. nigra, cauda brevi, pedibus pentadactylis.*
Black Mole, with short tail and pentadactylous feet.
Talpa caudata, pedibus pentadactylis. *Lin. Syst. Nat. p.* 73.
Talpa. *Gesn. Quadr.* 931. *Aldr. dig.* 449.
Taupe. *Buff.* 8. *p.* 81. *pl.* 12. *and suppl.* 3. *p.* 193. *pl.* 32.
European Mole. *Pennant Quadr.* 2. *p.* 229.

THE whole form of the Mole is eminently calculated by Nature for its obscure and subterrane-

ous life. The body is thick and cylindric: the snout slender, but very strong and tendinous: the head not distinguished from the body by any appearance of neck; the legs so extremely short as scarce to project perceptibly from the body; the fore feet situated obliquely outwards, excessively strong and broad, and furnished with very large and stout claws, so as to give the animal the power of working under the surface with the utmost ease and readiness: the hind feet are small in proportion to the fore feet, and are calculated for throwing back with ease the mould from behind the creature, during its subterraneous progress: the tail is short and small: the skin is much thicker and tougher in proportion than in other quadrupeds, and the fur with which it is covered equally surpasses that of other animals in fineness and softness. The muscular strength of the Mole is very great, and it is enabled to force itself into the ground with an extraordinary degree of celerity. The general length of the Mole is about five inches and three quarters, exclusive of the tail, which measures one inch. This animal is supposed to possess the power of hearing in an exquisite degree; and if at any time it emerges from its subterraneous retreat, instantly disappears on the approach of any danger. When first taken, either by digging it out or otherwise, it utters a shrill scream, and prepares for defence by exerting the strength of its claws and teeth. According to the Count de Buffon, so lively and reciprocal an attachment subsists between the male

and female, that they seem to dread or disrelish all other society. "They enjoy (says he) the placid habits of repose and solitude; the art of securing themselves from disquiet and injury; and of instantaneously forming an asylum, or habitation, of extending its dimensions, and of finding a plentiful subsistence without the necessity of going abroad. These are the manners and dispositions of the Mole; and they are unquestionably preferable to talents more brilliant, and more incompatible with happiness than the most profound obscurity."

The Mole is furnished with eyes so extremely small that it has been doubted whether they were intended by Nature for distinct vision, or rather merely for giving the creature such a degree of notice of the approach of light as might sufficiently warn it of the danger of exposure. Galen, however, seems to have been of a different opinion, since he ventures to affirm that the eyes of the Mole are furnished with the crystalline and vitreous humours, encompassed with their respective tunics; so accurate an anatomist was that great man, even unassisted by glasses. The learned Sir Thomas Brown, in his Pseudodoxia Epidemica, or Vulgar Errors, affirms that this observation of Galen "transcendeth his discovery;" for that separating these little orbs, and including them in magnifying glasses, he could discern no more than what Aristotle mentions, viz. a black humour. Mr. Derham, however, in his Physico-Theology, declares, that he has made "divers

accurate dissections of the eyes of Moles with the help of microscopes, having a doubt whether what we take to be eyes were such or no; and, upon strict scrutiny, could plainly distinguish the crystalline and vitreous humours, and the ligamentum ciliare, with the atramentaceous mucus:" the pupil he manifestly discerned to be round, and the cornea copped or conical: the eye is at a great distance from the brain, and the optic nerve very long and slender.

The Mole is reported to feed not only on worms, insects, &c. but also on the roots of vegetables; but it is certainly more carnivorous than frugivorous. It is even a very fierce and voracious animal in particular circumstances; and it is observed by Sir Thomas Brown, that whatever these animals be contented with under ground, yet, when above it, they will sometimes tear and eat one another; and in a large glass case, wherein a mole, a toad, and a viper were inclosed, we have known (says he) the Mole to dispatch them, and to devour a good part of them both.

The Mole is with difficulty kept alive in a state of confinement, unless constantly supplied with a provision of damp mould to reside in.

Like other animals of a black colour, the Mole is sometimes found perfectly white, or cream-coloured, and sometimes spotted. In a memoir relative to the Mole, published by M. de la Faille, it appears that four varieties may be reckoned, viz. the white Mole, the rufous or tawny Mole, the greenish-yellow or citron-coloured Mole (found

in some parts of Languedoc), and, lastly, the spotted Mole, which is variegated either with white or tawny spots or patches.

The Mole brings four or five young, for which she makes a very commodious nest, being, according to Buffon, guarded with a compages of the roots and fibres of plants, all around and above it, so as to prevent any water from penetrating; and around it, in a radiating direction, are several sloping holes, for the parent to go out at, in quest of food for herself and her offspring. These nests are to be found in the month of May, and are distinguished by a more elevated appearance above-ground than that of the hillocks formed by the usual exertions of the animal. Buffon adds, that in the nest are often found the remains of the root of colchicum or meadow-saffron, and which he, therefore, supposes to be the first food given to the young: this root is excessively acrimonious, insomuch that, when fresh, a slice held in the mouth will in a manner benumb the tongue, and render it rigid and void of sensation for some hours; and less than the quantity of a grain taken internally produces the most violent effects. This, however, forms no objection to the supposition of Buffon, since it is well known that many animals will feed with the most perfect impunity on substances which would exert the most malignant effects on the human frame, as well as on that of most other creatures.

The greatest misfortune that befals the Mole is, the sudden overflowing of rivers, when they

are said to be seen swimming in great numbers, and using every effort to obtain a more elevated situation; but a great many of them perish on such occasions, as well as the young, which remain in their holes.

A remarkable instance of the power which the Mole sometimes exerts in swimming, is given in the third volume of the Transactions of the Linnæan Society, one having been seen swimming towards a small island in the middle of the Loch of Clunie, in Scotland, at the distance of 180 yards from land.

Linnæus, in the twelfth edition of the Systema Naturæ, affirms that the Mole hybernates, or passes the winter in a state of torpidity; and the same observation is repeated in the Gmelinian edition of that work. This, however, is flatly contradicted by the Count de Buffon, who observes, that the Mole sleeps so little in winter, that she raises the earth in the same manner as in summer; and that the country people remark that the thaw approaches, because the moles make their hills. They endeavour to get into warm grounds, gardens, &c. during this season more than at others.

This animal is said to be unknown in Ireland. In Siberia it arrives at a larger size than in Europe. The fur is so soft and beautiful, that it would make the most elegant articles of dress, did not the difficulty of curing and dressing the skin deter from experiments of this nature.

PURPLE MOLE.

Talpa Purpurascens. *T. nigra, purpureo nitens, pedibus pentadactylis, cauda alba.*

Black Mole, with a gloss of purple; pentadactylous feet, and white tail.

Talpa virginianus niger. *Seb. 1. p. 51. t. 32. f. 3.*

THIS species so completely resembles the common European Mole in almost every particular, that it might pass for a variety of that animal. Its colour is black, with a strong cast of changeable purple; and the tail is white. It seems to have been first described by Seba, and is, according to that author, a native of Virginia.

CAPE MOLE.

Talpa Capensis. *T. viridi-aurea, cupreo nitens, palmis tridactylis.*

Gold-green Mole, glossed with copper-colour, with tridactylous fore feet.

Talpa Asiatia. *T. ecaudata, palmis tridactylis. Lin. Syst. Nat. p. 73.*

Siberian Mole, *Pennant Quadr. 2. p. 235.*

THIS is rather smaller than the common Mole, and of the same general form, but has a short snout, and is destitute of a tail. The fore feet are formed like those of the *red mole*, having only three claws, of which the exterior is by far the largest; the hind feet have five weak claws; but

what readily distinguishes this animal is the changeable colour of the hair, which is of a deep glossy green, with copper-coloured reflections: beneath it is of a greyish-brown. Its length is four inches. It is a native of the Cape of Good Hope, according to Mr. Pennant, and not of Siberia, as Seba, who seems to have been its first describer, supposed.

RED MOLE.

Talpa Rufa. *T. rufa, cauda brevi, palmis tridactylis, plantis tetradactylis.*

Rufous Mole, with short tail, tridactylous fore feet, and tetradactylous hind feet.

Talpa rubra Americana. *Seb. 1. p. 51. t. 32. f. 2.*

Red Mole. *Pennant Quadr. 2. p. 233.*

This, in its general appearance, resembles the common Mole, but is of a pale red-brown colour, and has only three toes on the fore feet, the exterior claw being much larger than the other two: the hind feet have four claws: the proportion of the tail is the same as in the common Mole. This species, as well as the preceding, was first described by Seba, who says it is a native of America.

LONG-TAILED MOLE.

Talpa Longicaudata. *T. fusca, cauda mediocri, pedibus pentadactylis, posticis squamosis.*
Brown Mole, with tail of middling length, and pentadactylous feet, the hinder ones scaly.
Long-tailed Mole. *Pennant Quadr. 2. p. 232.*

THIS is of the same general form with the common Mole, but is of a rusty brown colour; the end of the nose is radiated by a circular series of longish papillæ, and the tail is two inches long: the claws on the fore feet resemble those of the common Mole; but those of the hind feet are very long and slender: the hind feet are also scaly on their upper surface. This animal is a native of North America. Its length from nose to tail is four inches and six tenths.

RADIATED MOLE.

Talpa Radiata. *T. atra, pedibus albis, naribus carunculatis.*
Black Mole, with white feet, and nose radiated with papillæ.
Radiated Mole. *Pennant Quadr. 2. p. 232.*
Sorex cristatus. *Lin. Syst. Nat. p. 73.*

THIS is somewhat smaller than the common Mole, and is of a dusky or blackish colour. In general form it resembles the preceding species, having broad fore legs with long claws; the hind legs scaly and with much weaker claws: the nose long, and beset at the end with a circular series of

radiated tendrils: the length from nose to tail is three inches and three quarters. It is an inhabitant of North America, forming subterraneous passages, in different directions, in uncultivated fields, and is said to feed on roots. This species is the *Sorex cristatus* of Linnæus; being placed in that genus on account of its teeth, in despite of its appearance. It is, perhaps, in reality no other than a variety of the former species, or a sexual difference.

BROWN MOLE.

Talpa Fusca. *T. fusca, pedibus caudaque albis, palmis latissimis.*
Brown Mole, with white feet and tail, the fore feet very broad.
Brown Mole. *Pennant Quadr. 2. p. 232.*
Sorex aquaticus? *Lin. Syst. Nat. p. 74.*

This species of Mole was also obliged to give way to the systematizing spirit of Linnæus, and to rank under the genus *Sorex*. It is about five inches and a half long, from head to tail; the tail, which is very slender, being scarce an inch in length. The nose is slender: the upper jaw much longer than the lower: in the upper jaw are two cutting-teet, and four in the lower; the two middle ones being very small; and there are no canine-teeth: the fore feet are very broad, and the nails long: the hind feet small, with five claws on each: the hair is soft, glossy brown at the ends, and deep grey at the bottom: the tail and feet are white. It is a native of North America.

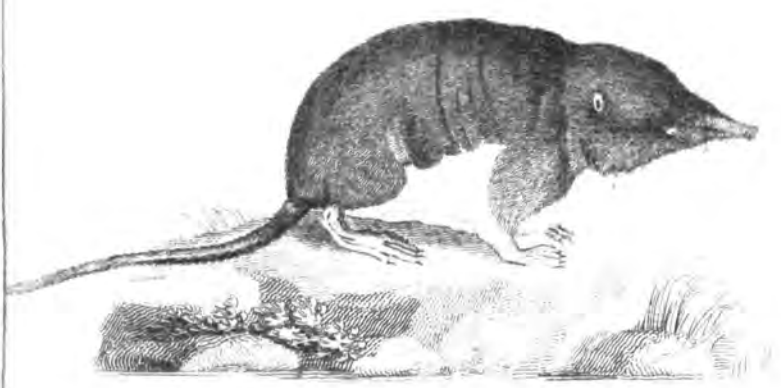
If this species be the same with the *Sorex aquaticus* of Linnæus, it has, according to that author, webbed fore feet, and, from its name, should seem to inhabit watery places; but neither of these circumstances are mentioned by Mr. Pennant.

SOREX. SHREW.

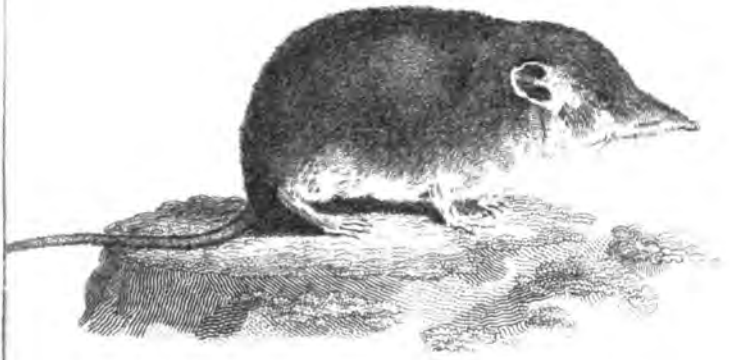
Generic Character.

Dentes Primores superiores duo, longi, bifidi.	*Front-teeth* in the upper jaw two, long, bifid.
Inferiores duo vel quatuor; intermediis brevioribus.	In the lower two or four; the intermediate ones shorter.
Laniarii utrinque plures.	*Canine-teeth* several on each side.
Molares cuspidati.	*Grinders* cuspidated.

THE genus *Sorex*, in its general appearance, bears a great resemblance to the mouse tribe; but the structure, number, and situation of the teeth prove it to constitute a very different set of animals, which are evidently rather carnivorous than frugivorous. It is more closely allied to the genus *Talpa*; insomuch that these two genera may be considered as linked to each other by intermediate species, which in habit resemble the one genus, and in teeth the other. It is owing to this circumstance that Linnæus, in the twelfth edition of the Systema Naturæ, has placed one or two genuine species of Talpa in the genus Sorex. The most common species of Sorex in this country is the S. Araneus, commonly known by the name of the Shrew Mouse.



WATER SHREW.



COMMON SHREW.

1800 Pubd. London Published by G. Kearsley Fleet St.

COMMON SHREW.

Sorex Araneus. *S. cauda mediocri, corpore subtus albido. Lin. Syst. Nat. p.* 74.
Ferruginous-brown Shrew, whitish beneath, with tail rather shorter than the body.
Mus Araneus. *Gesn. Quadr. p.* 747. *Aldr. dig. p.* 441.
Musaraigne. *Buff.* 8. *p.* 57. *t.* 10. *f.* 1.
Foetid Shrew. *Pennant Quadr.* 2. *p.* 224.

THIS little animal, which is perhaps the smallest of the European quadrupeds, is a very common inhabitant of our fields and gardens, and measures about two inches and a half, and the tail one and a half. Its colour is nearly similar to that of a mouse, but of a somewhat more ferruginous tinge; and the animal is readily distinguished by its long and sharp snout: the eyes are small and almost hid in the fur. It feeds on roots, grain, insects, and almost any kind of neglected animal substance. It has a very strong and unpleasant smell; and it is remarkable that cats will kill but not eat it. Mr. Pennant observes that there seems to be an annual mortality among these little animals every autumn; numbers of them being found dead at that season by paths and in the fields. It inhabits most parts of Europe, and is also said to be found in Siberia and Kamtschatka. It breeds in holes, under banks, among moss, &c. and is said to produce several young at a time.

MUSK SHREW.

Sorex Moschatus. *S. pedibus palmatis, cauda compressa lanceolata. Lin. Syst. Nat. Gmel. p.* 113.
Web-footed Shrew, with naked compressed tail.
Castor Moschatus. *C. cauda longa compresso-lanceolata, pedibus palmatis. Lin. Syst. Nat. p.* 79.
Mus aquaticus. *Clus exot. p.* 375. *Jonst. Quadr. p.* 169. *t.* 73.
Mus aquatilis. *Aldr. dig. p.* 447.
Pallas, it. 1. *p.* 156. *Lepechin, it.* 1. *p.* 178. *t.* 13. *Guldenstedt, Berl. Naturf. Beschr.* 3. *p.* 107. *t.* 2.
Desman. *Buff.* 10. *p.* 1. *pl.* 10.
Musky Shrew. *Pennant Quadr.* 2. *p.* 221.

THIS is a very singular species, which, though extremely common in some of the northern parts of Europe and Asia, does not seem to have been very distinctly understood by modern naturalists, till Dr. Pallas, Lepechin, and Guldenstedt gave accurate descriptions of its form and manners. It was, indeed, long ago described in a general manner by Clusius, who has also given a figure, which is repeated by Aldrovandus, Jonston, and others; nor is it to be denied that both figure and description are so far just as to discriminate the animal from every other at that time known.

According to Dr. Pallas it chiefly inhabits the river *Volga* and the adjacent lakes, from Novogorod to Saratof; and is not found in Russia, nor does its existence in Lapland seem well ascertained. It is said to be very seldom seen on land; confining itself to lakes and rivers, in the banks of which it occasionally burrows to a great

MUSK SHREW.

distance. The general length of the animal is about seven inches from nose to tail, and of the tail eight inches; but it is sometimes found of a larger size. Its colour is a cinereous brown, paler beneath; the body is moderately thick, and rather of a depressed or flattened form; the head rather small; formed as in the rest of this genus, and terminating in a remarkably long and flattened snout, running far beyond the lower jaw: this part of the snout is nearly bare on the upper part, but edged along the sides with a row of vibrissæ or whiskers; and a furrow or line of division runs along its upper part: it is of a seemingly cartilaginous substance, and, in the living animal, very flexible: in the lower jaw are four *front-teeth,* and on each side six *canine:* the *grinders* are four on each side in the upper jaw, and three in the lower: the eyes are extremely small, and there are no external ears, but merely the appearance of a pair of small holes at some distance beyond the eyes: the legs are very short, with five toes on all the feet, connected by a naked web or membrane, which is much wider on the hind than on the fore feet: the feet are nearly naked, and of a brown colour: the tail, except at its base, is perfectly naked, marked out into scaly divisions, and is of a brown colour: it is also of a laterally compressed form, and gradually tapers to the extremity: near the base of the tail are situated several small follicles or glandular receptacles, in which is secreted a yellowish fluid, resembling in smell the strongest civet: of this

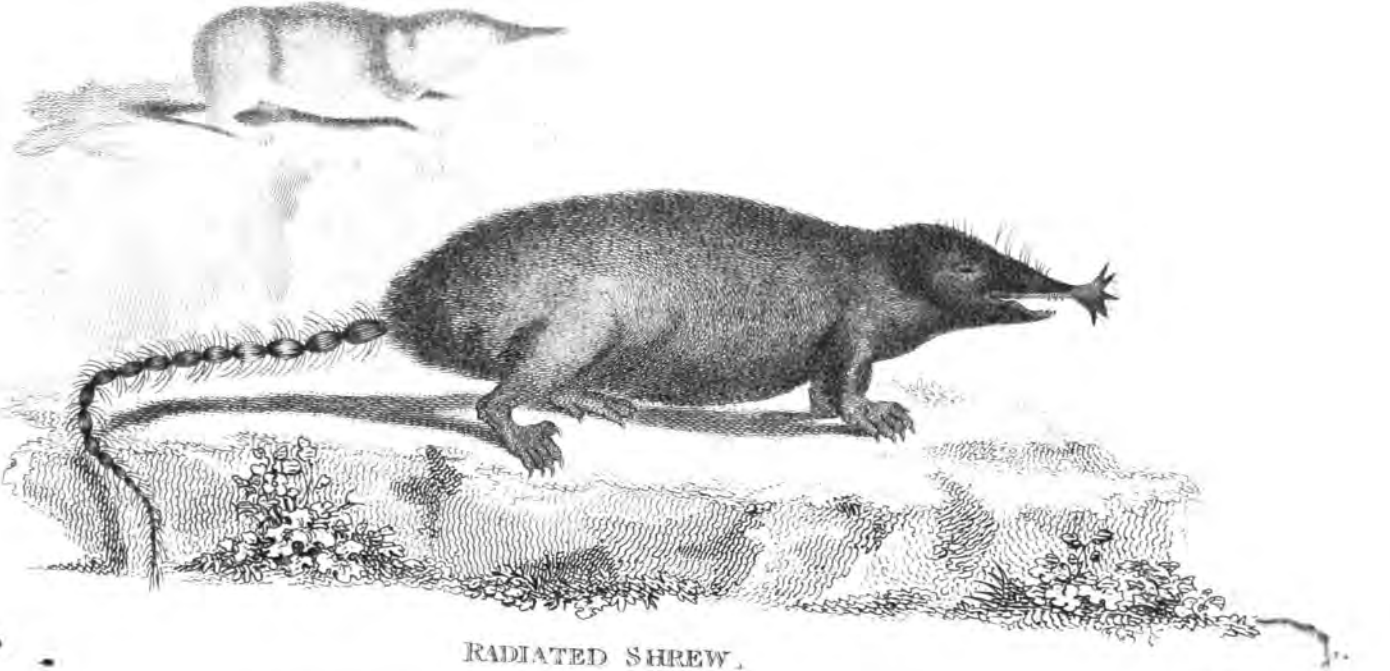
substance about the quantity of a scruple may, it is said, be obtained from each animal..

These creatures are said sometimes to be seen swimming about in considerable numbers on the surface of lakes and rivers, and may often be heard to snap their mouths with a sound not unlike that of a duck; feeding on worms, leeches, water insects, &c. as well as occasionally on vegetable substances.

In some particulars this animal makes a distant approach to that most singular of quadrupeds, the Platypus. It may also be added, that the Platypus, if considered merely with regard to external habit, and without reference to its generic character, might, perhaps, with almost equal propriety be placed in the present order as in that of *Bruta*, did not its want of teeth lead us to place it with the rest of the edentulous or toothless quadrupeds, viz. the Ant-Eaters and the Pangolins.

The Musk Shrew is a slow-paced animal, and easily taken, if accidentally found on land. The skins are said to be sold in Russia to put into chests in order to drive away moths, and so common is the animal in the neighbourhood of Nizney Novogorod, that the peasants are said bring five hundred apiece to market, where they are sold for a ruble per hundred.

In the twelfth edition of the Systema Naturæ this animal is placed in the genus Castor or Beaver, under the title of *Castor moschatus*.



RADIATED SHREW.

CANADA SHREW.

Sorex Radiatus. *S. nigricans, rostro producto, apice tentaculis radiato.*

Blackish Shrew, with lengthened snout, radiated at the tip with tentacula.

La Taupe de Canada. *Buff. suppl. 6. p. 254. pl. 37.*
De la Faille mem. 1769.

This animal may with great propriety be termed Sorex radiatus, since the snout, which is long and slender, has a dilated cartilaginous extremity, furnished with a circular series of sharp-pointed processes or soft tendrils, disposed in the manner of the rays in a spur. The whole animal is of a long form, and its habit immediately pronounces it to belong to the genus Sorex, and not to that of Talpa. It seems to have been first described and figured by Mons. de la Faille, in his Memoir on Moles. It is a native of Canada, and resembles the Mole only in some particular parts; while in others it approaches to the mouse tribe; having the same shape and agility. Its tail, which is three inches long, is knotty, and almost naked, as well as the feet, which have five toes on each, and are covered with small brown and white scales on the upper part. This animal, according to M. de la Faille (who considers it, in a general view, as a species of Mole), is more above ground, or less addicted to burrowing, than the common Mole. Its body is longish, and covered with black,

coarsish hair: the feet far less than those of a Mole: the eyes hid under the skin; the snout edged on each side with upright vibrissæ: the radiated tentacula at the end of the nose are of a bright rose-colour, and moveable at the pleasure of the animal, so as either to be brought together into a tubular form, or expanded in the form of a star.

It is said to inhabit Canada, but not to be very common there. It occasionally burrows somewhat in the manner of a Mole, but far less strongly, or more slowly, and is said to pass a considerable portion of its life beneath the surface of the snow. One would be inclined to think that the remarkable moniliform appearance of the tail in this animal, as exhibited in M. de la Faille's figure, may be partly owing to the contraction of the interstices of the joints in drying.

It is evidently allied to the radiated Mole, but if the figure given by M. de la Faille be accurate, must surely be a very distinct species.

PERFUMING SHREW.

Sorex Cærulescens. *S. cinereo-cærulescens, subtus pallidior, rostro cauda pedibusque carneis.*
Blue-grey S. with flesh-coloured snout, feet, and tail.
Sorex Pilorides. *Museum Leverianum, vol. 1. No. 1. p. 31. t. 8.*
Perfuming Shrew. *Pennant Quadr. 2. p. 222.*
Musaraigne musquee de l'Inde. *Buff. suppl. 7. p. 281. pl. 7.*

This measures from nose to tail near eight inches: and the tail is about three inches and a half long: the snout is very long and slender; the upper jaw extending far beyond the lower: the upper fore teeth are short; the lower long, slender, and incurvated: the eyes small, the ears semitransparent, short and round: the fur soft and fine, and the whole animal is of an elegant blue grey colour, paler beneath: the end of the nose and the feet are naked and rose-coloured. This animal diffuses a musky small, so extremely powerful as to penetrate almost every substance which it touches. Mr. Pennant informs us, that he has been assured, from good authority, that it has been known to make wine in a well-corked bottle undrinkable, merely by passing over it. This seems to be the same animal with that described and figured in the 7th supplemental volume of the Count de Buffon's Natural History, under the title of *Musaraigne musqueé de l'Inde,* which is said to have been brought by Mons. Sonnerat from Bengal: the tail, however, in this specimen seems shorter than in that before described, though

there can scarce remain a doubt as to the identity of the species. It inhabits fields, but is said sometimes to come into houses. It is found in the East-Indian islands, as well as in India, occurring in Java, &c. &c. and is said to feed chiefly on rice.

WATER SHREW.

Sorex Fodiens. *S. supra niger, subtus albus.*
Black Shrew, white beneath.
S. cauda mediocri subnuda, corpore nigricante subtus cinereo, digitis ciliatis. Lin. Syst. Nat. Gmel. p. 113.
Musaraneus dorso nigro ventreque albo. *Merret. pin. p.* 167.
Sorex Bicolor. Water Shrew. *Naturalist's Miscellany, pl.* 55.
Water Shrew. *Pennant Quadr.* 2. *p.* 225.
Musaraigne d'eau. *Buff.* 8. *p.* 64. *pl.* 11. *fig.* 1.

This species is considerably larger than the common Shrew, measuring three inches and three quarters in length, from nose to tail, and the tail two inches. Its colour is black on the upper parts, and white or of a very pale ash-colour on the throat, breast, and belly: the feet are white, and beneath the tail is a triangular dusky spot: the nose is long and slender, and the ears very small. It inhabits various parts of Europe and Asia, and is chiefly found near the banks of rivers, in which it burrows, and is instantly distinguishable from the common Shrew by its colour as well as size. It is said to have a kind of chirping note, like that of a grasshopper. It breeds in spring, and produces eight or nine at

a birth. This little animal seems to have been scarce known in France till it was observed and described by Daubenton in the year 1756, but it had long before that time been known as a native of England, though considered as a rare animal. It is well figured in the Natural History of the Count de Buffon. In some parts of Germany it is said to be known by the name of Graeber, or the Digger.

BRASILIAN SHREW.

Sorex Brasiliensis. *S. fuscus, dorso striis tribus nigris.*
Brown Shrew, with three black stripes on the back.
Sorex Brasiliensis. *Lin. Syst. Nat. Gmel. p.* 115.
Musaraneus figura muris. *Marcgr. bras. p.* 229.
Brasilian Shrew. *Pennant Quadr. 2. p.* 223.

This, which is only known from Marcgrave's description, is said to have sharp nose and teeth, and to be about five inches long, with a tail of the length of two inches: the back is marked with three broad black streaks. It is a native of Brasil, and Marcgrave pretends that it is a bold animal, and does not fear even the cat; neither does that animal pursue it.

SURINAM SHREW.

Sorex Surinamensis. *S. badius, subtus cinereo-flavescens, cauda corpore breviore.*
Bay Shrew, yellowish ash-coloured beneath, with tail shorter than the body.
Surinam Shrew. *Pennant Quadr. 2. p. 226.*

THIS is said to be about the size of the Water Shrew, which it much resembles, but is of a bay colour above, and of a pale yellowish ash beneath: the tail, which is about half the length of the body, is ash-coloured above and white below: the muzzle is white: the ears short and rounded, like those of the common Shrew. It is a native of Surinam.

ELEPHANT SHREW.

Sorex Proboscideus. *S. fuscus, naso cylindraceo longissimo.*
Brown Shrew, with very long cylindric snout.
Elephant Shrew. *Pennant Quadr. 2. p. 226.*

THIS species is of a deep brown colour, and of a thickish form, with a slender tail about the length of the body, and a cylindric, long, and slender snout or upper jaw, stretching very far beyond the lower: the ears are very large and slightly pointed. It is very indifferently represented in Petiver's Gazophylacium, and is said to be a native of the Cape of Good Hope.

WHITE-TOOTHED SHREW.

Sorex Leucodon. *S. fuscus subtus albus, cauda mediocri.*
Dusky Shrew, white beneath, with tail of middling length.
Sorex Leucodon. *Schreb. suppl. t.* 159. D.
White-toothed Shrew. *Pennant Quadr. 2. p.* 228.

THIS seems, from Schreber's figure, to be about the size of the common Shrew, and is of a dusky or blackish brown above, and white beneath; the two colours pretty distinctly separated from each other, even along the tail itself, which is rather short: the teeth, as the name seems to import, remarkably white: this, however, appears rather too slight a foundation for a permanent trivial name.

SQUARE-TAILED SHREW.

Sorex Tetragonurus. *S. cauda subquadrangula.*
Shrew with subquadrangular tail.
Sorex tetragonurus. *Schreb. suppl. t.* 159. B.
Square-tailed Shrew. *Pennant Quadr. 2. p.* 228.

THIS seems a rather larger species than the preceding: its colour is olive-brown above, and pale cinereous beneath: the tail but slightly hairy, and inclining to a quadrangular form. This species has no fetid smell.

WHITISH-TAILED SHREW.

Sorex Leucurus. *S. subfuscus, subtus albidus, cauda brevi apicem versus albida.*
Brownish Shrew, whitish beneath, with short tail whitish towards the tip.
Sorex constrictus? *Schreb. suppl. t. 159. C.*

THIS appears, from Schreber's figure, to be of the size and colour of the common Shrew, and is whitish beneath: the tail is short, brown at the base, and whitish or much lighter as it proceeds to the tip.

CINEREOUS SHREW.

Sorex Unicolor. *S. fusco cinereus, cauda basi angustata.*
Dusky-cinereous Shrew, with tail narrowed at the base.
Unicolore Shrew. *Pennant Quadr. 2. p. 228.*

THIS is of an uniform dusky-cinereous colour; with the base of the tail narrow or compressed. It inhabits, like the three preceding species, the neighbourhood of Strasburgh, where it was discovered by Professor Hermann.

This species, which is quoted by Mr. Pennant from Dr. Hermann, seems allied to the preceding.

MURINE SHREW.

Sorex Murinus. *S. cauda mediocri, corpore fusco, pedibus caudaque cinereis. Lin. Syst. Nat. p. 74.*
Brown Shrew, with ash-coloured feet and tail, the latter of middling length.
Murine Shrew. *Pennant Quadr. 2. p. 424.*

THIS is about the size of a common Mouse, and is of a brown colour, with pale ash-coloured feet and tail, which latter is rather shorter than the body, and but slightly hairy: the ears are rounded and almost naked: the snout elongated, and channelled underneath, and is also beset with long vibrissæ. It is a native of Java.

PERSIAN SHREW.

Sorex Pusillus. *S. auriculis rotundatis, cauda brevi subdisticha. Lin. Syst. Nat. Gmel. p. 115.*
Shrew with rounded ears, and short subdistichous tail.
Persian Shrew. *Pennant Quadr. 2. p. 227.*

THIS is said to be rather larger than the Surinam Shrew, measuring about three inches and a half: it is of a dusky-grey above, and pale ash-coloured beneath: in the form of its teeth it is nearly allied to the common Shrew, and is a native of the northern parts of Persia.

MINUTE SHREW.

Sorex Minutus. *S. rostro longissimo, cauda nulla. Lin. Syst. Nat. Gmel. p.* 112.
Tailless Shrew, with very long snout.
Minute Shrew. *Pennant Quadr. 2. p.* 227.

THIS is an extremely small animal, which inhabits moist places in Siberia, and makes its nest of lichens and mosses under the roots of trees, living on grains and seeds, &c. It is of a subferruginous brown colour above, and whitish below: the head is large; the snout very long and slender, and beset with a row of long whiskers on each side, reaching as far as the eyes. It has no tail: the eyes are small, and the ears short and naked. It is said to run swiftly, and to have a a voice like that of a bat. It weighs about a dram.

PYGMY SHREW.

Sorex Exilis. *S. minimus, cauda crassissima tereti.*
Extremely small Shrew, with very thick cylindric tail.
Pygmy Shrew. *Pennant Quadr. 2. p.* 227.

THIS is the least of all quadrupeds, weighing not more than half a dram. In shape and colour it resembles the common Shrew: the nose is very long and slender, and the tail is slender at the

base, and grows very thick towards the middle, and again gradually tapers to the tip. It is a native of Siberia, and is said to be common about the neighbourhood of the rivers Jenesei and Oby.

ERINACEUS. HEDGEHOG.

Generic Character.

Dentes Primores superiores duo, distantes; inferiores duo, approximati.

Lanarii superiores utrinque quinque, inferiores utrinque tres.

Molares utrinque supra et infra quatuor.

Dorsum spinis tectum.

Front-teeth two both above and below; those of the upper jaw distant, of the lower approximated.

Canine-teeth on each side, in the upper jaw five, in the lower three.

Grinders on each side both above and below four.

Body covered on the upper parts with spines.

EUROPEAN HEDGEHOG.

Erinaceus Europæus. *E. auriculis rotundatis, naribus cristatis. Lin. Syst. Nat. p.* 75.
Hedgehog with rounded ears and crested nostrils.
Erinaceus auriculis erectis. *Briss. Quadr. p.* 128.
Echinus terrestis. *Gesn. Quadr. p.* 368. *Aldr. dig. p.* 459.
Common Hedgehog. *Pennant Quadr.* 2. *p.* 235.
Herisson. *Buff.* 8. *p.* 28. *pl.* 6.

IF external appearance alone were regarded, the Hedgehog might be arranged in the same genus with the Porcupine, from which it chiefly appears

COMMON HEDGEHOG.

MALACCA HEDGEHOG.

to differ in the shortness of its quills or spines. The structure of the teeth, however, shews it to belong to a different tribe. Indeed, if we thus arranged animals from external appearance alone, we might also place in the same tribe with the Hedgehog an animal entirely different in the structure of its mouth, and in no other particular allied to the Hedgehog and Porcupine, except in its quilly covering, viz. the *aculeated Ant-Eater*, already described under its proper genus.

The Hedgehog is found in most of the temperate parts of Europe and Asia, and, according to Mr. Pennant, is also seen in Madagascar. It commonly measures about eleven inches from the nose to the tip of the tail, which is about an inch long. Its colour is generally grey-brown, but it sometimes is found totally white, or of a yellowish-white; instances of which may be seen in the Leverian Museum: similar specimens are also found in the works of Seba and other authors.

It feeds principally on the roots of vegetables; but it also eats worms, as well as beetles, and other insects. It wanders about chiefly by night, and during the day conceals itself in its hole, under the roots of some tree, or mossy bank. It produces four or five young at a birth, which are soon covered with prickles like those of the parent animal, but shorter and weaker. The nest is large, and is composed of moss.

The Hedgehog, when disturbed, rolls itself up into a globular form, and thus presents to its adversary an invulnerable ball of prickles. From

this state of security it is not easily forced; scarcely any thing but cold water obliging it to unfold itself. It swims perfectly well when thrown into water.

The Hedgehog is one of those animals which, during the winter, are supposed to continue in a state of torpidity. In that season it lies concealed in its hole, surrounded with a bed of moss, secure from the rigours of the most piercing frost, and at the return of spring recommences its wanderings. It is commonly said that the Hedgehog, in order to transport apples and other fruit to its place of retirement, rolls itself upon them, and thus conveys them on its spines. Whether this be accurately true I will not take upon myself to determine: the circumstance is related by Aldrovandus, who tells us that it practises this method of transporting grapes during the vintage.

The Hedgehog may be rendered in a considerable degree domestic, and has frequently been introduced into houses for the purpose of expelling those troublesome insects the Blattæ or Cockroaches, which it pursues with avidity, and is fond of feeding on. It is itself an occasional article of food in some places, and is said to be best in the month of August: they are usually roasted; and Gesner advises that they be first steeped (after skinning) in warm wine and vinegar, and then larded with bacon, and stuck with cloves: but Castor Durantes seems to approve rather of their being made into a pye with plenty of spice and seasoning, in order to obviate the bad qua-

lity of the flesh, which, it seems, is cold in the first degree!!!

The Hedgehog is generally considered as a harmless inoffensive animal, but has been frequently supposed (and to this day the notion prevails in many places) to suck the teats of cows by night, and thus cause by its prickles those exulcerations which are sometimes seen on cattle. From this accusation, however, it is completely absolved by Mr. Pennant, who observes, that its mouth is by far too small to admit of this practice. The Count de Buffon considers it as a creature of a malignant disposition, and observes, that one which he kept in a state of confinement in a tub, devoured its young ones, though supplied with proper food: this, however, is a phenomenon in natural history which occasionally takes place with several other animals.

The cruel practice of vivisection, so common among the more ancient anatomists, and too frequent even among modern ones, shews, in a striking manner, the patience of this creature under the most excruciating torture, since it has been known to undergo this severe operation without uttering any voice of distress.

"Clavis terebrari sibi pedes, & discindi viscera patientissime ferebat; omnes cultri ictus sine gemitu, plusquam Spartana nobilitate concoquens." —*Borrichius in Blas. de Echino.*

As a curious example of the absurdities which sometimes occur in the works of the older writers, we may observe, that, according to Albertus

Magnus, the right eye of a Hedgehog, fried in oil, and kept in a brass vessel, imparts all its virtues to the oil, which, used as a collyrium or ointment for the eyes, produces such a clearness of vision as to enable a person to see as well by night as by day!!! and Pliny affirms, that its gall, mixed with the brain of a bat, is a good depilatory, or application for removing superfluous hair!

But, whatever virtues, either real or imaginary, may be supposed exist in other parts of the animal, it is certain that its skin may be successfully used as a succedaneum for a clothes-brush, and was, in fact, applied to this purpose by the ancients.

We are also informed by the Count de Buffon, that it is usual in some countries to muzzle calves, when it becomes necessary to wean them, with the skin of the Hedgehog.

EARLESS HEDGEHOG.

Erinaceus Inauris. *E. auriculis nullis. Lin. Syst. Nat. p.* 75. *Briss. Quadr.* 184.
Hedgehog without external ears.
Erinaceus Americanus albus. *Seb. mus.* 1. *p.* 78. *t.* 49.
Guiana Hedgehog. *Pennant Quadr.* 2. *p.* 237.

This, on a general view, seems to be nothing more than a variety of the common Hedgehog; differing chiefly, according to Seba, in having the spines on the upper parts of the body shorter,

thicker, and stronger: the head, however, is somewhat shorter and the snout blunter than in the common Hedgehog, and there is no appearance of external ears: the whole animal is also of a white or very pale colour. It is figured by Seba, who tells us he received it from Surinam. Its length from nose to tail is about eight inches; the tail scarce an inch long; the claws long and crooked.

LONG-EARED HEDGEHOG.

Erinaceus Auritus. *E. auriculis ovalibus longis, naribus cristatis. Lin. Syst. Nat. Gmel. p.* 116.
Hedgehog with long oval ears, and crested nostrils.

This species resembles the common Hedgehog in form, and is found about the river *Volga*, and in the eastern parts beyond lake *Baikal*. In size it is said to vary, being in some places smaller, and in others larger than the common species, but may be immediately distinguished by its ears, which are large, oval, open, and naked, with soft whitish hair on the inside, and edged with brown: the legs and feet are longer and thinner than those of the common Hedgehog; and the tail shorter and almost naked: the upper part of the animal is covered with slender brown spines, with a whitish ring near the base, and another towards the tip: the legs and belly are covered with soft, white fur. In its general manner of life this species is said to resemble the com-

mon Hedgehog; the female produces six or seven young at a time, and is said sometimes to breed twice a-year.

STRIPED HEDGEHOG.

Erinaceus Madagascariensis. *E. spinoso-setosus, fasciis longitudinalibus albis nigrisque, rostro longo acuto.*
Hedgehog with spines and long bristles; the body longitudinally banded with black and white; with long, sharp-pointed snout.
E. Ecaudatus *E. cauda nulla, rostro longissimo acuto. Lin. Syst. Nat. Gmel. p.* 117.
Le Tanrec & Le Tendrac. *Buff.* 12. *p.* 438.
Le jeune Tanrec. *Buff. suppl.* 3. *p.* 214. *pl.* 37. *and* 7. *p.* 301. *pl.* 76.
Le petit Tandrek de Madagascar. *Sonner. voy.* 2. *p.* 146. *pl.* 93.
Asiatic Hedgehog. *Pennant Quadr.* 2. *p.* 236.

This animal, which is a native of Madagascar, was first described by the Count de Buffon, under the name of Le Tanrec; it should seem, however, that the specimen described had not attained its full growth, and consequently did not exhibit with sufficient clearness, all the characters of the animal. It is described and figured by Mr. Sonnerat in his voyage to Madagascar. Mr. Sonnerat calls it *Le petit Tandreek,* and says, that, at its full growth, it measures seven inches in length: it has two incisores in each jaw, and five toes, with claws, on each foot; the claws on the fore feet are much longer than those of the hind. The limbs are short, and the snout long, and terminating in a point; and it has no tail. It is of

a black colour, with five longitudinal bands on the body: all the black parts are covered with hard hair; the white bands with small prickles, analogous to those of a porcupine. From the black bands on the back spring long scattered hairs which reach to the ground: the head is covered with short black hairs or prickles: the snout is white; the eye surrounded by a white circle, and the feet are reddish. The Tandreks move slowly, and grunt like pigs; for which reason they are called Ground-Hogs, or Pig-Porcupine, by the Europeans. They burrow under ground, and remain torpid three months in the year: they hide themselves in the day-time, and only appear after sun-set, in order to seek their food: they live chiefly on fruits and herbs: their body is a mere lump of fat: the natives of Madagascar eat them, but consider them as but an indifferent food. Madagascar is the only country in which the Tandreks are found.

Var. ?

TANREC.

Tanrec. *Buff.* 12. *p.* 44. *pl.* 56.

THIS is larger than the former, and is covered with spines only on the top and hind parts of the head, the top and sides of the neck, and the shoulders: in that described by Buffon, the longest were on the upper part of the neck, and stood erect: the rest of the body was covered

with yellowish bristles, among which were intermixed some that were black, and much longer than the others.

Both the above animals are considered by Mr. Pennant as the same species, which he names the *Asiatic Hedgehog*. It is, according to Mr. Pennant, as large as a Rabbet when full-grown; and not only burrows on land, but frequents shallow waters. Mr. Pennant also adds, that, during the time of its lying torpid, its hair falls off. In Dr. Gmelin's edition of the Systema Naturæ, the Tendrac and the Tanrec are kept distinct, under the names of *Erinaceus setosus* and *E. ecaudatus*. But Mr. Pennant's idea seems most probable, viz. that both constitute but one species, and that those described by the Count de Buffon had not arrived at their full growth. It is remarkable, however, that Sonnerat, in his description of the Tendrak, says it measures but seven inches when full-grown.

MALACCA HEDGEHOG.

Erinaceus Malaccensis. *E. auriculis pendulis. Lin. Syst. Nat. p.* 75.
Hedgehog with long spines and pendulous ears.
Porcus aculeatus, seu Hystrix Malaccensis. *Seb.* 1. *p.* 81. *t.* 51. *f.* 1.
Hystrix brachyura. *Lin. Syst. Nat. ed. X. p.* 57.
Malacca Porcupine. *Pennant Quadr.* 2. *p.* 123.

This species, which seems to have been first described and figured by Seba, has so completely

the appearance of a Porcupine, that nothing but a severe adherence to systematic arrangement from the teeth, could justify its being placed in the present genus: yet even this particular seems not yet distinctly known, the animal being rarely imported into Europe. Mr. Pennant supposes that Linnæus might have been induced to consider it as belonging to the present genus, on account of the number of its toes, which are said to be five on the fore feet, instead of four, as in the Porcupine. The accurate Brisson, however, considered it as a species of Hedgehog, and Linnæus, in compliance with his opinion, transferred it from the genus Hystrix to that of Erinaceus. The particular size is not mentioned by Seba, but it appears to be a large species, since the length of its quills is said to be from an inch to a foot and half, on different parts of the animal. It is therefore probably about the size of the common Porcupine, and they are variegated in a similar manner: the ears are large and pendulous, and there is no crest or ruff of longer bristles than the rest on the back of the head, as in the common Porcupine.

This is said to be the animal from which is taken the particular Bezoar, called *Piedra del Porco*, the *Lapis Hystricis*, *Bezoar Hystricis* and *Lapis Porcinus*, of the old Materia Medica, so long and so highly extolled on account of its supposed virtues, which were such, according to some authors, as to produce the most wonderful and salutary ef-

fects in fevers and various other disorders of a malignant nature.

In order to experience the effect of this wonderful concrete, which is commonly about the size of a small walnut, round, smooth, and of a reddish brown colour, nothing more was necessary than to infuse it for some minutes in a glass of wine, water, or other liquor, which was by this method impregnated with all its virtues, and administered to the patient. The truth is, that, being a biliary concretion, found in the gall-bladder, it is intensely bitter, and being soluble in water, impregnates the fluid with its bitterness and with supposed aperient, stomachic, and alexipharmic virtues.

These concretions, which have now lost their consequence, and are regarded merely as curious specimens of the old materia medica, were once so esteemed as to have been sold, when large and perfect, for the sum of five hundred crowns.

END OF VOLUME I.

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